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GLEANINGS IN BEE CULTURE

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Order Here For Next Year.

WE are negotiating with The A. I. Root Co. for a complete variety of supplies manufactured by them, including all Danzenbaker specialties and up-to-date apiary merchandise. Orders booked prior to Dec. 1 given special prices and early delivery. Place your order ahead of the season to avoid disappointment.

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DAMAGED SALE

I have just finished unloading a car of bee-keeper supplies that were in the Kansas City flood, and some of the goods are good as new, some slightly damaged. I will sell at A BIG REDUCTION.

1 Cowan No. 17 honey-extractor, good as new,.....	ONLY	\$11.50
5 Cowan No. 15 honey-extractors. good as new,.....	ONLY	\$10.50
1 Novice No. 5 honey-extractor, good as new,.....	ONLY	\$7.50
1 Doolittle Solar wax-extractor, good as new,.....	ONLY	\$3.50
A lot of Danz. AD6 hives at a BIG Reduction.		
A lot of 8-frame " at a BIG Reduction.		
A lot of 10-frame " at a BIG Reduction.		
SMOKERS, ALLEY TRAPS, FOUNDATION, SOME OTHER SMALL GOODS AT GREATLY		

Reduced Prices.

I would not attempt to sell the above goods as new goods, but the hives when set up and painted would require close inspection to tell them from new goods. All the above goods are of the A. I. Root Co.'s manufacture and are just as represented. Write me in regard to the goods you want and I will explain to you further.

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CARL F. BUCK,
AUGUSTA, Butler Co., KANSAS.

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Get our prices before purchasing elsewhere. We are selling first-class make of goods at lower prices than the cheaper goods can be purchased for. If requiring Hives, Sections, Honey-extractors, Shipping-cases, Knives, Bee Smokers and Veils, Comb Foundation, or any thing else in the line of

BEE-KEEPERS' SUPPLIES

you should remember that

The L. A. Watkins Mdse. Co.

Denver, Colorado,

are headquarters for the State, and furnish local associations who can use as much as a carload at carload prices direct from the factory, or smaller lots from our well-furnished warerooms in Denver, at prices that defy competition for equal quality of goods. We are agents for THE A. I. ROOT COMPANY'S Goods for Colorado, and want to hear from bee-keepers in need of supplies. We buy honey and wax.

Let Us Hear from You.



Announcement!

We desire to call the attention of all bee-keepers in Washington, British Columbia, and adjacent territory, that we're now the Northwestern agents for

THE A. I. ROOT COMPANY, and are prepared to furnish from stock here, and at other Washington points, any thing required by bee-keepers. Send your specifications early. If we do not have the goods wanted this will enable us to get them in our next car-load. Catalogs free.

LILLY, BOGARDUS & CO.,
Seattle, Washington.



Northern-grown Seeds, Trees and Plants,
Poultry and Bee Supplies, Spray Pumps,
Fertilizers and Garden-tools.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsmeared by travel stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

No 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled the out side of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark, that is, there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE.—The market continues about the same as when we last reported. The receipts have been quite liberal, and generally of good quality and condition. While the sales have not been as good as could, desire we yet expect the demand will improve as the cool season comes on, as the market seems healthy. We continue to quote fancy 1-lb. sections 15@16; No. 1, 14@15. Extracted, in barrels and cans, white, 7@7½; amber, 6@6½ and wanted. Beeswax, 30.

A. V. BISHOP & CO.,
Oct. 5. 119 Buffalo St., Milwaukee, Wis.

CHICAGO.—The volume of sales is larger than at this time last year, and the supply more than corresponds with sales, but the prices and good quality of honey are expected to make a larger demand than we have had for several years. No 1 fancy sells at 13@14 with practically no sale for off grades, which are quoted at 10@12. Extracted white, 6@7; amber, 5@6, according to quality and kind of package. Beeswax, 28@30.

R. A. BURNETT & CO.,
Oct. 7. 199 South Water St., Chicago, Ill.

BUFFALO—The demand for white comb honey is better than it was. The trade is particular, and wants only the white, clean stock. If the wax is yellow from travel-stain it does not sell well and price has to be cut. Fancy white comb, 14@15; No. 1, 13½@14; No. 1, 13@13½; No. 2, 12@12½; No. 3, 11@12; No. 1 dark, 11@12; No. 2 dark, 10@11. White extracted, 6½@7; amber, 6@6½; dark, 5½@6. Beeswax, 28@30.

W. C. TOWNSEND,
Oct. 10. 178 & 180 Perry St., Buffalo, N. Y.

NEW YORK.—Comb honey is arriving quite freely now, and is finding ready sale at 15¢ for fancy white; No. 1 white, 13@14; No. 2 white and amber, 12. Very little buckwheat on the market as yet, and prices are hardly established. Extracted honey is ruling about the same as last, with plenty of offerings of all grades. Beeswax is somewhat declining, and selling at present at 28@29.

HILDRETH & S. ELKEN,
Sept. 28. 265-267 Greenwich St., New York.

CINCINNATI.—The demand for honey is a little better. The prices rule about the same. Extracted is sold as follows: Amber, in barre's, 5@5½—in cans, about ½ more; water-white alfalfa, 6@6½; white clover, 6½@7½. The comb-honey market is quite lively, and sells as follows: Fancy water-white, 14½@15½. Beeswax is in good demand, and will now pay 30¢ delivered here.

C. H. W. WEBER,
Oct. 7. 2146-8 Central Ave., Cincinnati, Ohio.

ALBANY.—Honey market more active here, with prices as follows: fancy white comb, 16; No. 1, 15@15½; No. 1, 15; medium, 14@14½; buckwheat, 13½@14. Think these prices are better than fancy, but a month later, as grocerymen are stocking up now. Extracted white, 7@7½; amber, 6½@7; buckwheat, 6@6½. Beeswax, 28@29. Commission, five per cent.

MACDOUGAL & CO.,
Oct. 9. 375 Broadway, Albany, N. Y.

PHILADELPHIA.—Comb honey is arriving quite freely, and quality is generally a little off on account of the cool weather we had the past season. Very little really fancy honey arriving in this market. We quote A No. 1 at 15@16; amber, 13@14. Extracted, fancy white, 7@8; amber, 6@7. Beeswax, 32¢, and in good demand. We are producers of honey, and do not handle on commission.

W. M. A. SELSER,
Oct. 8. 10 Vine St., Philadelphia, Pa.

DENVER.—There is a good demand for comb honey in carload lots. Home market quiet at following prices: No. 1 comb honey, \$2.75@3.00 per case; No. 2 ditto, \$2.40@2.50 per case. Extracted honey, 7@7½ cts. per pound. Beeswax wanted at 22@25 cts. per pound.

COLORADO HONEY-PRODUCERS' ASSOCIATION,
Oct. 10. 1440 Market St., Denver.

SCHENECTADY.—Weather conditions are favorable, and market very active for both comb and extracted. We quote fancy white, 16; No. 1, 15; mixed, 13@14; buckwheat, 12@13. Extracted, light, 6½@7½; dark, 5½@6. Oct. 19. CHAS. McCULLOCH,
Schenectady, N. Y.

TOLEDO.—The honey market has brightened up some owing to cool weather, and is in good demand at the following prices: Fancy white comb, in nodrip cases, 16; No. 1, 15. Extracted, in barrels, 7; in cans, 8. Beeswax, 26@28. Oct. 3. GRIGGS BROTHERS,
214 Jackson Ave., Toledo, O.

ALBANY.—Honey market firm here for comb of any grade. Fancy-white comb, 16; A No. 1, 15; No. 2, 14½@15; buckwheat, 13½@14. Extracted white, 7@7½; amber, 6½@7; buckwheat, 6@6½. Beeswax, 29@30.

H. R. WRIGHT,

Oct. 10. 326, 328, 330 Broadway, Albany, N. Y.

KANSAS CITY.—The demand for comb and extracted honey is good. We quote fancy white comb, 24 sections per case, \$3.00; No. 1, \$2.90; No. 2 and amber, \$2.75. Extracted white, per lb., 7; amber, 5½@6. Beeswax, 25@30. Oct. 6. C. C. CLEMONS & CO.,
Kansas City, Mo.

BOSTON.—Comb honey continues to be in good demand. Fancy cartons we quote at 17@18; No. 1, 16. Glass-front cases, fancy white, 16; No. 2, 14. Extracted, Florida, 6½@7½, according to quality.

BLAKE, SCOTT & LEE,
Oct. 8. Boston, Mass.

CINCINNATI.—Comb and extracted honey are coming in freely, and the demand is good with steady prices. Amber extracted, 5½@6½; white clover, 6½@7½. Fancy comb honey, 15. Beeswax, 30.

THE FRED W. MUTH CO.,
Oct. 1. Front & Walnut, Cincinnati, Ohio.

SAN FRANCISCO.—Honey, new comb, white, 12@13; light amber, 11@12. Extracted, water-white, 6@6½; light amber, 5½@6; dark amber, nominal. Beeswax, 30. Sept. 23. ERNEST B. SCHAEFFLE,
Murphys, Cal.

DETROIT.—Fancy comb honey, 16; No. 1, 14@15; No. 1 dark, 12@13. Extracted white clover, 7@7½. Beeswax, 28@30. M. H. HUNT & SON,
Oct. 8. Detroit, Mich.

TORONTO.—Present honey-market quotations are as follows: Comb, \$1.25@\$1.50 per dozen; fancy, \$1.50@\$1.75. Extracted, first quality, 6@8 in wholesale lots. Sept. 30. E. GRAINGER & CO., Toronto, Ont.

FOR SALE.—Extracted choice ripe clover honey in cases of two 60-lb. cans each, at 8 cts. per lb.; 335-lb. bbls. at 7½ cts per lb.

G. W. WILSON, R. F. D. No. 1, Viola, Wis.

FOR SALE.—Several barrels of extracted honey, fine flavor and quality, at 7c per lb.; sample 6c.

G. ROUTZAHN, Biglerville, Pa.

FOR SALE.—6000 lbs. choice ripe clover honey, new; 60-lb. cans.

ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Fancy basswood and white-clover honey; 60-lb. cans, 8c; 2 cans or more, 7½c; bbls., 7½c.

E. R. PAHL & CO., 294 Broadway, Milwaukee, Wis.

FOR SALE.—Fancy comb and extracted honey; extracted in 60-lb. cans. Prices quoted on application.

WILLIAM MORRIS, Las Animas, Col.

FOR SALE.—5000 lbs. of fine comb and extracted honey, mostly all comb.

L. WERNER,

Box 387. Edwardsville, Ill.

WANTED.—Honey. Selling fancy white, 15c; amber, 13c. We are in the market for either local or car lots of comb honey. Write us.

EVANS & TURNER,

Columbus, Ohio.

We Make a Specialty of
Prompt Shipments.

If you are in a hurry for supplies send us your order and we will surprise you with our promptness. All goods shipped within 10 hours after receiving the order. Over a million sections and two tons of foundation now on hand. Hundreds of hives, and all other supplies

READY FOR IMMEDIATE SHIPMENT.

Lewis's and Dadant's
 Goods.

Lewis C. & A. G. Woodman, Grand Rapids, Mich.

**The Best Bee-goods
 in the World**

are no better than those we make, and the chances are that they are not so good. If you buy of us **you will not be disappointed. We are undersold by no one.** Send for our catalog and price list and free copy of THE AMERICAN BEE-KEEPER; in its thirteenth year; 50 cents a year; especially for beginners.

**The W. T. Falconer Man'f'g Co.,
 Jamestown, New York.**

W. M. Gerrish, Epping, New Hampshire, carries a full line of our goods at catalog prices. Order of him and save the freight.

===== **HONEY JARS** =====

1-lb. sq. jars with corks.....	\$5.00 gross	2-lb. sq. jars with corks.....	\$7.40 gross
Eagle or No. 25.....	\$5.75	Nickel Cap jar, holds 13 oz.	\$5.50

The last is a fancy jar, and makes a fine package for exhibition. Discount on quantities of jars; the larger the quantity the lower the price. Catalog describing honey-packages, shipping-cases, cartons, bee-hives, bees, and every thing a bee-keeper uses, mailed upon application.

Tested Italian Queens, \$1.00; Untested, 75 cts.

I. J. STRINCHAM,
 Apiaries, Glen Cove, L. I. **105 Park Place, New York.**

Root's Goods in Chicago

The business for many years conducted by George W. York & Co., at 144 East Erie Street, as agent for The A. I. Root Company's supplies, is this day transferred to The A. I. Root Company to be conducted as a Branch Office. All outstanding accounts will be paid George W. York & Co.

The policy of the Branch House will not be changed. We shall continue to serve the interests of bee-keepers to the best of our ability, and to increase our facilities whenever possible for such service. Mr. York will still be in the same office with us, and the benefit of his years of experience with this trade will thus be available.

Please note change of name to avoid confusion in our work.

Oct. 1, 1903.

The A. I. Root Co.

All orders, remittances, inquiries, etc., should be addressed to The A. I. Root Company, 144 East Erie Street, instead of George W. York & Co.

Statement by Geo. W. York & Co.

To Our Customers and Friends:

In transferring back to The A. I. Root Company the bee-supply business which we took over from them some years ago, we do so with regret, as we have labored hard to build up a large and honorable trade in bee-appliances, and value beyond expression the valuable patronage accorded us during the years. We trust the same will be continued to our successors in the business.

Please note that this transfer does not in any wise affect our publishing the American Bee Journal or handling bee-books and queens. But we expect from now on to be able to devote more time to the Bee Journal, as for years we have had "too many irons in the fire" to give it the attention it requires.

GEORGE W. YORK & CO.

Chicago, Ill., Oct. 1, 1903.

We are the Largest M'rs of Bee-keepers' Supplies in the Northw est.

Send for Catalog.



Minneapolis, Minnesota

We Have the Best Goods, Lowest Prices, and Best Shipping Facilities.

Dittmer's Foundation.

RETAIL AND WHOLESALE.

This foundation is made by a process that produces the superior of any. It is the cleanest and purest. It has the brightest color and sweetest odor. It is the most transparent, because it has the thinnest base. It is tough, clear as crystal, and gives more sheets to the pound than any other make. **Working Wax into Foundation for Cash a Specialty. Beeswax Always Wanted at Highest Price.** Catalog giving full line of supplies, with prices and samples, free on application.

E. Grainger & Co., Toronto, Ont.,
Sole Agents for Canada.

Gus. Dittmer, Augusta, Wis.

To New Subscribers!

Only 20c

will get a new subscriber the American Bee Journal every week from now to the end of this year (1903). During that time it will contain a full report of the recent

Los Angeles Convention

of the National Bee-keepers' Association, besides the usual other valuable reading matter in each week's issue. Every reader of *Gleanings* should also have the American Bee Journal regularly. Sample copy free. Ask for it.

ADDRESS

George W. York & Co.,

144-6 East Erie St., Chicago, Illinois.

WANTED! Fancy Comb Honey

In No-drip shipping cases. Also, Amber extracted, in barrels or cans. Quote your best price delivered Cincinnati.

The Fred W. Muth Co., FRONT and WALNUT, Cincinnati, O.

BEE-KEEPERS

We have on hand ready for PROMPT SHIPMENT

**The Largest Stock we ever Carried
of HIVES, SECTIONS, and all Other SUPPLIES.**

Perfect Workmanship and Finest Material.
All parts of our Hives are made to fit Accurately.
No trouble in setting them up.
Our customers say it is a pleasure.
We are not selling goods on NAME ONLY,
But on their Quality.

G. B. LEWIS COMPANY,

Manufacturers Bee-keepers' Supplies.

Catalog Free. **Watertown, Wisconsin, U. S. A.**

Let Me

Sell or Buy Your Honey

If you have some to offer, mail sample with lowest price expected, delivered in Cincinnati.
If in Need state quality and kind wanted, and I will quote you price. We do business on the cash basis in buying or selling.

**Full Stock of Bee-supplies, the best made.
Root's Goods at Their Factory Prices.
Seeds of Honey-plants.**

C. H. W. WEBER, CINCINNATI, OHIO.
2146-8 Central Ave. Suc. to Chas. F. Muth and A. Muth.

GLEANINGS JOURNAL OF BEE CULTURE

A JOURNAL
DEVOTED
TO BEES,
AND HONEY,
AND HOME
INTERESTS.

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OCT. 15, 1903.

No. 20



By Dr. C. C. MILLER.

WHAT IS SAID on p. 850 about the scarcity of water reminds me that all the water at Grand Canyon is brought in great tanks on cars, and I was told that it was brought from a distance of 150 miles!

C. P. DADANT has done me a great favor. You know he has had only from 2 to 5 per cent of swarming heretofore. Well, he reports for this year in *Revue Internationale* "a perfect avalanche of swarming." So I don't feel so bad that my bees were so bent on swarming. It was in the air.

OTHERS may think as they like, but so well convinced am I that in this locality bees sting black more than white that I wear in summer white trousers, although for the sake of looks I'd much prefer black. [Perhaps you are right, but I have never been able to see that the bees make very much distinction except that they sought out black spots.—ED.]

UNCLE SAM, in order to keep the wheels of government running, pays out each minute of the 24 hours of each day \$1270 75. But as he collects during the same time \$1403.36, the old gentleman is able to salt down in his stocking \$132.61 every minute, or \$190,836 a day. If he isn't too extravagant in other respects, he ought soon to save up enough to buy him an automobile.

IN MOVING BEES that ten days' journey, p. 847, wouldn't you advise water in some form? [Yes, indeed, the bees ought to be given water. In shipping bees by the car-load it is a good practice and almost an absolute necessity in hot weather to give them water through the wire cloth, either by means of wet sponges or by spraying or sprinkling the wire cloth with a broom sopped in water.—ED.]

FORMIC ACID is still frequently spoken of as the poison of the bee-sting. Nearly 20 years ago Cheshire wrote of the poison, "Its active principle seems to be formic acid, probably associated with some other toxic agent," and Cowan speaks of it much the same way. But latest investigations, as formerly reported, I think, in GLEANINGS, show that the poison is something separate and distinct from formic acid. Haven't time to look it up, but I think Dr. Langer is the authority.

A FRIEND asks, "Is good ripe extracted honey harmful for a person to eat, if that person is afflicted with liver, kidney, and bladder trouble?" One might eat too much bread, or too much of any thing, and one might eat too much honey. But used in moderation I should expect no evil results from eating ripe honey where sugar would be put entirely under the ban. The mischief in such diseases comes from the burden of changing cane to grape sugar. The change is already made in honey.

WHAT DOES M. W. Shepard mean, p. 841, by speaking of spacing $\frac{1}{4}$, $\frac{3}{8}$, and $\frac{1}{2}$ inch? [What he meant, probably, was close and wide spacing. But his figures do not mean much unless we know the width of his top-bars. A top bar $\frac{1}{2}$ wide with $\frac{1}{4}$ inch between the frames would give the regulation $\frac{1}{2}$ spacing, now almost universal. But what J. E. Pond really advocated was spacing $1\frac{1}{4}$ from center to center—at least not more than $1\frac{1}{8}$. A few years ago the spacing was $1\frac{1}{8}$ and $1\frac{1}{2}$ from center to center. Now $1\frac{1}{2}$ is being gradually abandoned, and $1\frac{1}{8}$ is coming to be the regular standard throughout all modern bee-appliances. Close spacing results in the building of less drone comb and the storing of less honey over the brood in a brood-frame. After all, $1\frac{1}{8}$ is a very nice compromise between the wide and narrow extremes.—ED.]

WHEN BEES ball their own queen, don't they generally do it to protect her? Often I have had them ball their queen; and if I immediately close the hive and leave them for some hours undisturbed, I do not expect the queen to be any the worse for it; but if

the disturbance were kept up long enough the balling would kill her — starve her — just as a mother has sometimes killed her baby by too much care, smothering it. [Bees balling a queen to protect her — why, that is possible, but I have always associated the idea of balling with the feeling of hostility on the part of the bees. I never saw a bail of bees yet where the bees were not tugging and pulling at the queen. If they were endeavoring to protect her, would they not turn right face about, prepared to grab the intruder, just as they stand when they catch a robber on the wing at the entrance? I should like to know what friend Doolittle thinks of such a proposition.—ED.]

WELL, as I was saying, heretofore the biggest yield I ever had from a single colony was 192 sections; this year it was 300, with a number of colonies tagging pretty closely after it. I credit it partly to selecting best storers to breed from, but chiefly to the phenomenal flow of white clover. Bees stored from it till Sept. 1; and even now, Oct. 5, a good deal of white clover is yet in bloom. [Well, well! that's good. We congratulate you, doctor. Not many years ago you were lamenting because your locality was so poor, and I was urging that you go to a place where you could get bass-woods as well as clover? I think you said something to the effect that you were too old a bird to move, and that you would take your chances. But, look out! Some fellow will be moving over next to one of your yards. As I made you tell the yield, I will help to fight him off in case he does come.—ED.]

A. I. Root will need a whole lifetime to find just the right ration to keep him in perfect health; and when he has found it he'll find it needs to be changed every time conditions change; and then when he has found the ration to fit each different condition he'll find it will not exactly fit any stomach in the world but his. Don't understand I'm throwing mud at A. I. Root for his investigations — he's doing good; and although he may never reach the *exact* knowledge he's seeking, he's all the time giving us useful pointers, and I for one am watching his investigations with interest. [You are exactly right when you say that a ration that will fit one man's stomach will not fit that of another. A very good rule is to eat what agrees with one, providing his judgment is not too much swayed by what he *likes* rather than by what makes him *feel well* and *sleep well*. When I get run down I invariably have to get back to lean beefsteak, with some simple cereal food or toasted bread.—ED.]

REPLYING to those who say that the drones are needed for heat, C. P. Dadant gives the following clincher in *American Bee Journal*: "If drones had been intended at all for warmth, they would have been kept when the weather is cold in the spring. But the reverse is the case. Let there be a few weeks of warm weather,

early drones will be reared; then let a cold spell come when the brood needs care and warmth, and at that very time you will see the workers persecuting the drones, driving them out mercilessly, one by one, to tolerate them again when the heat returns" [Yes, indeed, that does seem like a clincher; but is it not possible that, during hot weather or the swarming season, they help to increase the heat so that comb-building may fairly progress? I know this: That drones have a good deal of animal heat, for I once put a double handful of them in my hat, and then astonished the natives by doffing my hat to a crowd, to their utter dismay, resulting in their pawing the air and scattering for cover. As I walked up town I could feel a considerable degree of warmth, although I must confess the great clumsy fellows crawling through my hair gave me a sort of "buggy" feeling. See page 881.—ED.]

SPEAKING of the wax-press as a honey-squeezing, p. 836, a great deal of honey in Europe is pressed out, heather honey being too thick to be emptied by an extractor. [Very true. The trouble in this country is that Americans seem to feel that chunks of honey can not be treated in any way but through the solar wax-extractor. This always impairs the flavor of the honey, even if it does not ruin it. It is high time that practical bee-keepers were doing some squeezing as well as extracting. A honey-press in European catalogs is a regular article of sale, and they would no more be complete without a honey-press than without a honey-extractor. There is a great deal of chunk honey broken out from combs built to covers, behind division-boards, etc., that will accumulate in spite of good bee-keepers and fairly good management. In the rush of the season one is apt to have more than he can do, with the result that the bees get ahead of him, and build chunks of honey where they ought not to. The only rational way to treat these is to put them into a press, squeeze the honey out cold, then melt the wax afterward. The honey will bring two cents a pound more, and the wax will be much handier to run through the wax-press.—ED.]

IF I MAY BE allowed to say a word on the matter of diet, I should say that the one thing above all others needed by this nation is to eat less. A large number whose digestive machinery is constantly out of repair would be greatly benefited by having all their meals cut square in two; and a great majority of those who are not engaged in severe physical labor would get more nourishment from their food if they had only two-thirds as much. The great study seems to be how to get up some new dish more appetizing so as to get more food eaten, and condiments of the hottest kind are used to whip up the jaded stomach to make it carry its load. No wonder the poor thing balks. The no-breakfast fad is probably doing good to many people, just because they can't gorge themselves as

much in two meals as they can in three. Possibly they might be better off—I don't know—if they would eat three meals a day, and eat only the right things and the right amount; but it is easier to cut out one meal a day than it is three times a day to obey the injunction of the wise man, "Put a knife to thy throat, if thou be a man given to appetite." If you dismal dyspeptics would cut out of your meals all the things that you know hurt you, and a third of the things that are good for you, this would be a good deal brighter world. [I have known some children that have had to go to bed hungry, simply because there was not any thing in the house to eat, or very little at least, and yet they were ruddy and healthy. A stomach occasionally empty for ten or twelve hours is sometimes just the condition that one needs. There is too much overloading; and, as you say, if the quantity of our rations were cut down we should live longer and better.—ED.]



The following is from the *Morning Echo*, of Bakersfield, Cal. It is an account of one of the most gratifying arrests known to bee-keeping. Rambler once said that if one undertakes to do any thing in California he must "bore with a mighty big auger." It seems that stealing there is sometimes carried on in that way.

Deputy Sheriff Johnson and F. D. Lowe returned last night from the Hoy ranch with a large part of the honey which had been stolen from Mr. Lowe. They were unable to bring it all at one load, so the rest was left at Sunset.

Deputy Sheriff Johnson, who was interviewed last night, gave the facts of the detection and arrest of the thieves and the discovery of the stolen goods as follows:

A week ago last Sunday Mr. Lowe, who has a bee-ranch at Rosedale, sent for Deputy Sheriff Johnson, told him of the loss of his honey, and engaged him to help find it and capture the persons who stole it.

It was dusk when Mr. Johnson reached the Lowe ranch, but they succeeded in getting a few clues that night. They found that the honey had been moved from the store-room, to the road in Mr. Lowe's own wheelbarrow, and that an effort had been made to obliterate the tracks by sweeping them with a brush. The next morning the deputy sheriff, who, by the way, is a trailer of long experience, identified the tracks of one of the horses that had hauled the stolen honey away. One of the animal's feet was crooked, and it wore a peculiar shoe. This track was followed into town and to a point where it turned south.

Deputy Sheriff Johnson then made a search to convince himself that the honey had not been shipped from Bakersfield or Kern. For certain reasons he could not take up the search for a couple of days, and in the meantime Mr. Lowe went out to the Hoy ranch and secured sufficient evidence to swear out a search-warrant. With this the two, with Deputy Sheriff Stanley, took up the trail and followed the peculiar track very easily to the Hoy place. They secured one can of honey here, and arrested the elder Hoy. While Deputy Sheriff Staley brought the prisoner to town,

Johnson and Lowe tracked young Hoy and Westley to the upper ranch. The young men were out hunting, and returned at ten o'clock at night to find the deputy sheriff and the bee-keeper awaiting to receive them. The men were well supplied with arms, having, besides their hunting outfit, six rifles, two shot-guns, and a couple of six-shooters.

As soon as they had landed their prisoners in jail, Johnson and Lowe went back after the honey, which they found in a cabin belonging to a sheep man about 500 yards from the Hoy cabin. It was cleverly concealed in a corner of the room, and the door and windows were securely nailed up.

There were 26 shipping-cases containing 24 sections each, and seven supers containing 268 sections. It was impossible to bring the entire amount at one load, so seventeen cases were stored at Sunset. Three cases were left at the jail as evidence, and the remainder was taken to Mr. Lowe's ranch.



LONDON GROCER.

I find the following in the *London Grocer* for Sept. 19. Coming, as it does, from so good an authority, it will be found of interest to all bee-keepers in this country:

Reports reach us from Scotland as to the prospects of a poor honey harvest there this season. For the second year in succession Scotch bee-hands have to be content with a crop which will reach only about one-half that of ordinary seasons, owing to an abnormally cold and backward spring being followed by an equally adverse early summer. At Ayrshire, a town famed for the industrious bees, the outturn of honey will once more be very limited. Various other parts of the west of Scotland report that the produce of honey will be short. Comb honey of good quality is scarce, and those who possess such ask for a further increase in prices from those of a year ago. Pressed heather honey in bulk and in bottles will no doubt be more plentiful; but with the failure of the crop of 1902 the price of this article will have an upward tendency, so that we are safe in assuring those members of the trade who deal in this article that there will be a very restricted supply this season. In the south of England the honey harvest is over, and reports state that the crop is no better, and the quality not quite so good as last year.

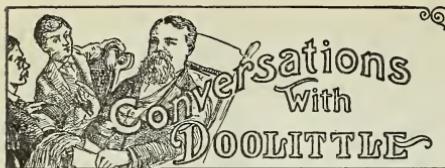
At the London market recently 78 packages of Jamaica honey were sold at \$5.33 per 100 lbs. Chemists are now retailing honey at 32 cts. per lb. against the grocer at 21 cts. for the same quality. Honey is an article which meets with a ready sale in the grocers' and oil-men's business, more especially during the winter months. We presume the Pharmaceutical Society will not deem the grocer a trespasser on the preserves of the chemists by the sale of honey, simply because chemists use honey largely in making up their remedies for the cure of winter colds. They have for many years encroached upon the tea-dealer's trade by selling tea, upon which they make a large profit. Why, then, should not the grocers push the sale of an article within their legitimate trade which is as justly renowned for its value as pleasant to take?

The above indicates that honey sells at a higher price there than here. The reader will also note the absence of any reference to American honey, owing to the idea current in England that our honey is adulterated as soon as it leaves the hive. While the English trade has been imposed on, no doubt, by unscrupulous vendors on this side, the purchase of the best honey in the world can be more easily effected here than anywhere else.



BEE KEEPER'S REVIEW.

Mr. Hutchinson has devoted a large part of the October issue to California as a honey State. It is superbly illustrated with photos taken by Mr. H himself, and the description is from his own pencil as he saw things there. It presents the bright and the dark side of California life in the apiary in a way never before attempted.



ABOUT DRONE COMB.

"Good morning, Mr. Doolittle. I have come over to have a little out-of-season talk with you. It is like this: I have been trying all summer to get over here, but I have been so busy that I could not get here till now."

"Well, Mr. Smith, the old saying is, 'better late than never,' so perhaps we can talk on an out-of-season topic to advantage at this time. What was it you wished to talk about?"

"Can you tell me why my bees built so much drone comb last summer? In hiving my swarms I gave them one or two combs already built, by way of a starting at housekeeping with them, and I find now, in getting them ready for winter, that fully half the comb they built was drone comb. Can you tell me how I can prevent this in the future?"

"Yes, it is easily told. Put in full frames of nice worker comb, filling the hive full of these; or fill every frame set in any hive full of foundation. See how easy it is?"

"Y-e-s. But I have not got the worker comb, nor do I feel like spending so much money for foundation. What I want to know is how to make the bees build worker comb. Can't you tell me something about how comb-building is conducted, so that we may find some solution to this difficulty?"

"Perhaps so. All observing apiarists know that, as the day of swarming draws near, the queen ceases her prolificness so as to be able to fly and go with the swarm. Otherwise she could not; for if a queen is taken from a colony when she is most prolific in egg-laying she can not fly at all."

"Is that so? This is something new to me, as I have been keeping bees only two seasons. Then the reason she lays so few eggs just before the swarm issues is that she may be able to fly with the swarm?"

"This is one of the reasons; and another is that she need not be inconvenienced with an over-accumulation of eggs on arriving at their new home before any comb can be built; for it takes some time for the bees to get started in a new home when they enter some home not provided for them by men. And so we find that all queens do not become fully prolific again, after swarming, till they have been in their new home some three or four days. During this time comb is being built quite rapidly where honey is coming in plentifully from the fields, and under such conditions the bees build comb faster than the queen occupies it with eggs; but where honey comes in slowly the queen

is able to keep up with the comb-building by depositing an egg in each cell as built."

"But what has this to do with the matter of drone comb?"

"When, for any reason, the queen does not occupy the cells with eggs as they are built, and honey is coming in plentifully from the fields, the bees, to economize, commence to build store comb, which is of the drone size of cells, and is mainly filled with honey the first season, so that the trouble from this store comb does not usually come till the next spring, when, being emptied of the honey, it is used to rear drones in."

"I think I begin to see now, for honey was coming in rapidly at the time these swarms were filling their hives."

"Yes, undoubtedly. But let me go a little further: If, in addition to the above, we give the swarm a frame or two of comb at time of hiving, as you say you did, we make matters doubly worse, in that we furnish a place for the queen to deposit nearly all the eggs she would naturally lay during the first week after hiving, consequently nearly all the comb built by the bees during this time will be for store comb, or of the drone size of cell, as you furnished for the queen all the room in which to lay that she needed."

"That looks reasonable to me now; but I never thought but that I was doing the right thing when I gave the two combs. This helps me much; but, if you have no objections, tell me how you manage in this matter."

"The swarm is hived in a hive of the same size as the one it came from, the same being full of empty frames, each having only a starter of comb foundation in it, the same being about half an inch wide. They are left thus for a day or two till a little start is made at comb-building. At this time half of the frames are taken out, leaving those having the most comb built in them, and the hive contracted to a size to suit the frames left by means of dummies or division-boards, and at the same time putting on the sections, some of which have combs for baits in them."

"What is the object of this?"

"Preparing the hive in this way gives the bees plenty of room above to store honey, thus not crowding them in the brood-chamber, so that only comb of the worker size is built below, and that only as fast as the prolificness of the queen demands it. As her ability to lay increases, more comb is built; so that at the end of the season I have the hive filled with nice worker comb and a good supply of honey in the sections."

"But is there not considerable work to this?"

"Yes, some work, and so there is to any thing well done. By the above plan three important items are secured—lots of section honey, no drone comb, and a hive full of nice straight worker comb; and as these latter will, with careful usage, last nearly or quite a lifetime, it well pays to spend a

little time on them while they are being built."

"But are you not troubled by the queen going up into the sections and laying there, when you work as you have been telling?"

"I used to be before the advent of thin foundation for sections, for then we had to rely on comb built in the sections by the bees, which was of the drone size of cells more often than otherwise; and if the bees wanted to rear drones for any reason, the queen would go up into the sections and lay in the drone comb there. But if each section is filled with thin worker foundation, as it should be, there is no incentive for the queen to go into the sections from any drone comb in them. But if you have fears of the queen going above, a queen-excluding honey-board will prevent her doing so entirely."

"I see the matter much differently than when I came, and shall try to profit from what I have learned. Good day."



MAKE sure that your colonies have plenty of winter stores for their long winter's sleep.

WHEN SHALL WE PUT THE BEES IN CEL-LAR?

EVERY thing will depend on the locality and the winter—at least the fore part of it; in Northern Ohio, somewhere about the last of November; but if the weather is warm, don't put the bees in till it turns quite cold with the probability that it will stay so.

CONTRACTING ENTRANCES.

IN a few weeks now it will be well to contract the entrances of all *outdoor*-wintered colonies to not larger than $\frac{3}{8} \times 8$ inches. If the colony is of only medium strength, the entrance should be smaller still—say $\frac{3}{8} \times 4$. *Indoor*-wintered colonies, on the other hand, should have all the entrance that can be given them; and some go even so far as to leave the hives off the hive-bottoms entirely, leaving the whole bottom open, resting on blocks two inches high.

NOT A CANDIDATE FOR RE-ELECTION.

AS my term of director of the National Bee-keepers' Association expires with the present year, I desire to announce that I will not be a candidate for re-election. This action is not based on any dissatisfaction on my part with the Association or with its management, but because my regular duties, which are growing heavier, require

me to give up some of my outside work. There is excellent timber in the Association; it is in a flourishing condition, and I can consistently refuse to run, because there are other men more capable and more efficient to take my place. Such an announcement as this would not be necessary save for the fact that it has been the almost universal rule of the membership to re-elect the old directors. To forestall such possible action in my case, I deem it but proper to make this statement now.—E. R. Root.

KEEPING HONEY LIQUID INDEFINITELY UNDER ALL CONDITIONS.

IN our issue for Sept. 15, when I spoke of the Boardman honey that had kept liquid outdoors on the window-shelf clear through the winter, notwithstanding we had quite a number of zero days, I had forgotten the fact that that honey was already a year old when I received it. We will let Mr. B. speak for himself:

Mr. Root:—You mention on page 793 my sample of honey that would not grain; but you overlooked the important fact that it had been put up one year when I sent it to you, which gives it a test of two seasons. I am very confident—yes, sure—that I can do what I claim—put up honey that will remain liquid indefinitely—not almost, but quite, and in any temperature.

East Townsend, O., Sept. 25. H. R. BOARDMAN.

If Mr. Boardman can keep his honey liquid indefinitely under all conditions he is to be congratulated.

THE AMERICAN LUMBERMAN ON THE SUPPLY OF BASSWOOD.

THE following item from the *American Lumberman* of Aug. 29, 1903, probably the best authority on the subject of lumber in the United States, will explain itself:

The supply of basswood is short, and inquiry is consequently urgent. It looks as if consumers will have to turn to some other variety of lumber to offset the demand for basswood.

Ten years hence, I suppose all supply manufacturers will be looking for some other material for making sections; and it is possible we shall be making the four-piece, unless some of the cottonwoods that grow so rapidly in the West can be used as a substitute. Basswood is a rapid grower; but the small trees over the country are not beginning to keep pace in growth with the demand for this valuable timber.

A FOUL-BROOD BILL FOR OHIO.

I SHOULD be glad to hear from any of the bee-keepers of Ohio who will be willing to turn in and give a lifting hand in helping to get through our legislature this winter a foul-brood law. The old Ohio State Bee-keepers' Association will be resurrected, and will probably hold a joint meeting with the Hamilton Co. Bee-keepers' Association (the most flourishing organization of its kind in Ohio), to consider at once the drafting of a bill to be presented at the next general assembly. It is high time we were up and doing. The bee-keepers of Hamilton County are deeply in earnest, and they should be given loyal and helpful support

by their brethren in the craft from all over the State. Announcements later.

JUST IN TIME—THE DEWITTS AGAIN

SINCE our special notice that we published on page 820, Sept. 15, we have heard of quite a number of others who have claims on the Dewitts, which claims will probably never be paid. But, apparently, the Dewitts are endeavoring to get more goods on credit, even at this late date, and we think it is only proper that our readers be cautioned again, as the following will show:

Mr. Root:—Your notice in regard to the Dewitts, page 820, GLEANINGS, Sept. 15, saved me \$12.60. They sent me a local check for that amount, and I had started the goods for the freight-house when I espied what you had to say; and, fearing trouble, I telephoned the freight-house to hold the goods until I heard from the check. I learned to my sorrow that the check went to protest, and I had nearly \$2.00 to pay for the same.

C. L. PARKER.

Syracuse, N. Y., Oct. 7.

“MACHINE-MADE QUEENS” BY THE PECK.

WE have shown our readers quite a number of finely built cells built off from prepared cell cups. Mr. Arthur Stanley, of Dixon, Ill., has sent us a photograph of a nice lot built off from his gun-wads, and which I reproduce on page 883. These gun-wads are slipped into Stanley circular cages made of perforated zinc. (See May 15 GLEANINGS, page 446, for further particulars.) The cages are then kept in the hive until the virgins hatch out, when they are given to nuclei or queenless colonies.

The art of raising queen-cells by the peck is an easy one; but getting virgins fertilized by the peck is another proposition altogether. Some one asked me a short time ago how much it was worth to get a queen ready for fertilization, and how much to get her fertilized. For even figures we will say a laying queen is worth \$1.00. I should say it was well worth 66 $\frac{2}{3}$ cents—yes, and I am not sure but it would be worth 75 cents, to get her fertilized. I think I would rather offer virgins at 35 cents than laying queens at \$1.00. Stanley, Swarthmore, Pridgen, and last, but not least, Doolittle, have done much to simplify the method of raising queens up to the age of fertilizing. These methods not only cheapen queens, but give us a better grade all through.

Some have objected, thinking that such methods produce “machine-made queens,” and that, therefore, they can not be as good. If the queens are inferior, that inferiority is due to the man and not to the method.

“LIGHTNING OPERATORS;” BUCKWHEAT HONEY.

SOME time ago Mr. R. A. Burnett, the commission man of Chicago, in referring to unripe honey having been put on the Chicago market, spoke somewhat disparagingly of certain buckwheat honey that was put up by so-called “lightning” operators, saying of New York that it was unripe, and unfit to put on the market. This reference caught the eye of Mr. W. L. Coggshall, in whose apiaries the word “lightning opera-

tor” or operators originated. One might possibly suppose that the Coggshall honey was referred to; but, as Mr. Coggshall said, he had not sent any honey to Mr. Burnett for a good many years, and that what he did send at the time was pronounced first quality. Since this disclaimer, the term “lightning operator” might narrow down to Mr. Harry Howe, who was the chief of the lightning operators, at least he feels that his friends might so construe it.

Mr. Howe, who is managing 500 colonies for the Root Co., in Cuba, writes that he did send some honey to Mr. Burnett in 1896, but there was only 3580 lbs. of it, all of which was extracted from sealed combs; and that Mr. Burnett, in acknowledging the receipt of it, called it good honey, and said that the same arrived in good condition.

THE DUAL PLAN OF INTRODUCING VIRGINS; WHO FIRST DISCOVERED IT?

AFTER I wrote up this method for GLEANINGS, and A. I. R. had read the whole plan, he came to me and said, “Why, I had that very plan once, and I wrote it up in the journal at the time.”

“Well,” said I, “suppose you find it.” He immediately began fumbling over some thirty volumes of GLEANINGS. Talk about a needle in a haystack! Well, he did not find the needle. But he insisted that he had that “very idea,” but that it did not prove to be a success with him. The other day, as I was looking over our A B C book I ran across a paragraph which he wrote in 1877, which I suppose I have read scores of times during my various revisions, but had forgotten it. Under the heading of “Queens,” after speaking of the fact that the young virgin never takes a rest during the first week of her life, but is constantly on the move, he says:

This is one reason why I am averse to caging young queens, in order that we may allow several to hatch in the same hive. It seems to be natural for them to run about, and I believe it is necessary for their well-being. Several years ago I thought I had made a brilliant discovery when I succeeded in hatching all the queen-cells in the hive, under cups made of wire cloth. The first hatched was allowed to run until she became fertile, and began laying; she was then removed and the next released, and so on. I think I succeeded in getting four laying queens from the single lot of cells, all in the one hive, but the bees made such desperate efforts to get the obnoxious cages out of the way, and the inmates of the cages to get out, that I gave up the plan, after seeing several fine queens die of nothing else, so far as I could see, than confinement.

Yesterday I read this to A. I. R.; and as I concluded he said, “There, I told you so.”

“But,” I said, laughingly, “you did not know a good thing when you had it. You concluded that the bees were making desperate efforts to get the ‘obnoxious cages’ out of the way. While I will admit they are foreign to their hive architecture, experience in late years, and during this past summer in our bee-yard, has shown that bees endure what they can not help, and that the young virgins are fertilized and laying in approximately four or five days as against eight or ten the old way.”

"But I still think it will not work *all* the time," he said.

"But," I replied, "it *has* been working successfully for us this whole blessed summer—before the honey-flow, during it, and after it."

TRUSTING NEW OR UNTRIED COMMISSION MEN WITHOUT CASH IN ADVANCE.

ONE H. G. Holloway, advertising himself as doing business at No. 1 Vine St., Philadelphia, is apparently soliciting consignments of honey from bee-keepers in various parts of the country. He asks for small shipments as samples, by express, stating that he will remit for the same on arrival. If the goods are satisfactory, there is an intimation that he will place a large order. The letters are neatly written in typewriter, on elaborately printed stationery, having every appearance of an old established house doing a commission business. The manager of our Philadelphia branch, at 10 Vine St., only a few steps away, called, at our request, at No. 1, and informs us that Mr. H. has only a little room at No. 1 Vine St., with nothing in it.

We advise no shipments of honey, either large or small, without cash in advance, to any new man, without good references. The party above named is not mentioned at all in one of the commercial directories, and he is rated as —— in the other. But, as we have said before, no new commission merchant should be entrusted with your property unless you get your money in advance. We have reiterated this so many times that it seems almost like cant for us to keep on repeating it. If you desire to know about the responsibility of any commission house, write us and we will tell you whether it is safe to trust such party or not. But don't—*don't*—put your hard earnings into the hands of a stranger, no matter how "highfalutin" his letters may look or sound.

Later.—We learn that this Mr. Holloway, in soliciting a consignment of honey, wrote to one of our bee-keeping friends, saying that *we* had referred him (Holloway) to this bee-keeper for honey. This was absolutely false; but our unsuspecting friend, supposing this to be true, sent on his honey, but now wishes he had written us first. A word to the wise will be sufficient.

FORMALDEHYDE AS TESTED BY MR. C. H. W. WEBER FOR THE DISINFECTION OF COMBS.

AFTER receiving some unfavorable reports regarding the new drug treatment, I wrote Mr. Weber, asking him if he had had any experience going to show that the treatment failed to cure in some instances. He wrote that he had, and said he would send me a report for publication. This he has done, and I take pleasure in presenting it to our readers:

In treating foul-brood colonies with formaline gas it has transpired that, after a seemingly sufficient fumigation, in some instances the disease had made its reappearance. Regarding this I beg leave to offer the following explanation and reasons:

When taking a foul-broody frame out of an affected colony, we notice upon examination that the dead larva lies on the lower side of the cell. In order to learn how the same progressed, return the frame to the colony. After eight or ten days, taking the same out again, we notice that the dead larva has been changed into aropy, gluey matter, and still resting on the lower side of the cell. After some length of time we notice that this ropy or slimy matter has nearly all dried up; in fact, after first examination it appears that every thing has disappeared; the comb seems to be in good condition; but, after closely examining the same by holding the comb so the light penetrates the cell, you will observe that the lower part of the cell appears as if coated with a brown tinge, which is nothing but the aforesaid slimy matter. When dried up, if any thing else should extend from the coating the bees will clean it away. As this slimy matter has dried up and become as hard as the wax from which the cells are constructed, the question arises, "What has become of the foul-brood germs which were in this gluey matter?" To this I offer the following solution:

After this matter has dried up, the germs on the surface, being readily exposed to the fumes of formaldehyde, have been easily killed; while those beneath the surface, or protected by this hard matter, have not been killed, and, with the advent of hot weather, soon make their reappearance. This proves that formaline gas will kill the germs it comes in contact with. It has also been proven that honey-combs in infected hives never used for brood-rearing, when well extracted of honey, and then strongly fumigated, and given to new healthy swarms, did not show any signs of the disease during the fall, spring, or summer. To hatch bees it takes a temperature of about 98 or 100 degrees. It seems that this heat does not affect the dried-up matter, as the trials that I made last year from the end of August, during September and October, did not show up any signs of foul brood in the early part of spring, until the extremely hot weather set in, which seemed to melt this dried-up matter, exposing the germs, and, consequently, bringing on a reaction of the disease. This has been experienced by nearly every one who has experimented with formaldehyde; and I therefore recommend the destruction of brood-combs wherein any larva died and kept lying as described before, and saving only such combs as showed no disease whatever; also the honey-combs by fumigating the same strongly with formaldehyde.

Foul-brood matter, whether dried up or whether in a semi-liquid gelatinous condition, is always dangerous. While we may assume that the fumes of this drug, if they can reach the actual microbes, will kill them, yet it is apparent that, if they are covered with wax or honey, or any enveloping material, they will be protected; and as soon as the protection or covering is removed, the active principle will develop, bringing out the disease as before. I should somewhat question whether it would be safe to rely on fumigation for disinfecting combs filled with honey. If the combs were extracted, and then fumigated after being cleaned by the bees, I should presume the treatment would disinfect them. I should suppose, also, that a good fumigation of actually diseased combs would check the disease. But my impression is that, till we know more about it, it would be safer to burn or melt all diseased combs, fumigating all empty ones—empty of brood and honey. If the formaldehyde will do no more it will then save a large loss, and at the same time be putting up an additional safeguard against the reappearance of the disease.

DUAL HIVE STANDS.

EVER since Mr. J. S. Callbreath, of Rock Rift, N. Y., showed his double hive-stand in GLEANINGS I have been wondering if it

were not a pretty good thing; and when Mr. Danzenbaker visited us a short time ago he remarked, with some emphasis, "The Callbreath article with illustrations which you published in July 15th GLEANINGS was one of the best things you have ever given to the public." Since then we have been figuring on various forms of hive-stands for our own use, as we think enough of the principle to give it at least a reasonable test in one of our outyards another season. We therefore constructed two different patterns—one made up of simple posts and frame, as shown in the smaller illustrations, and another on a plan devised by Mr. Danzenbaker, as shown on p. 885. I argued with him that the first mentioned was simpler and cheaper, and just as serviceable. But he finally convinced me that his stand could be made shorter, and that the posts could be sawn out of three-inch plank, the same as our old chaff hive posts were made of, in the shape of a letter V. Double and cross nailing with cap or water-table boards laid flatwise on top of the frame would make a stronger stand—one that would not need to be so long as the other for the same number of hives, because the cap boards could project over on each end, and rest on the posts.

On page 886 the two stands are shown, for each one to decide for himself which is the better.

Now, the question arises, "Is the double stand as good as one that will accommodate only one hive?" Dr. C. C. Miller and many other prominent bee-keepers all over the United States have used for years a double stand; but the Miller was made of boards and 2×4's, the same lying very close to the ground. But Mr. Callbreath suggested the convenience of having a stand high enough so that the operator could practice shaking or brushing swarms, uniting, and doing the thousand and one other things done where hives are set in pairs, without any back-breaking work. Such a stand permits the toes or insteps to stick under far enough to allow the thighs to abut up against the hives, forming a brace to the body while lifting heavy combs out of the hive or putting them in.

As Dr. Miller has said, the bees of one stand will not make the mistake of going into the next entrance on the same stand, although the bees of one hive may, by mistake, enter the corresponding hive in the pair next adjoining. If, however, one arranges to have three hives on one stand, two on another, and perhaps one on still another, this confusion would be entirely overcome. If, further, one stand is under or near a tree, another is backed up by a low bush, another facing a lot of weeds, another near a building, and so on through the apiary, even queen-rearing work could go on, and young queens will always find their regular entrances.

The hive-stands illustrated are one foot high, and will accommodate two hives placed a little way apart, or three hives

placed close together, the two end-hives in this case projecting a little over the end of the stand.

The legs can be set down on the ground anywhere, and all that is required is to level up for the one leg that is either too high or too low.

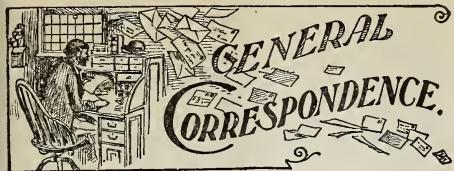
Now, what are the objections to these stands up on legs? One is that clipped queens might get lost down under the hives in the grass, being unable to fly up on the entrance-boards; but if the swarm is in the air it would be a very easy matter to find the queen, because, instead of running into some hive, she would be in the grass, accompanied by the usual characteristic ball of bees.

Another objection is that, during the height of the honey-flow, heavily laden bees may *just miss* the entrance-board, and then it is necessary for them to take wing again before they can get into the hives. This is a more serious objection in spring; for if the bee does not make the entrance the first time it will probably fall down on the ground, and chill, with the result that there will be spring dwindling in the hive if bad weather continues long. Mr. Callbreath overcomes this objection by running a board from the ground up to the alighting-board; but here is quite an expense. We overcome it to a great extent by making a very wide alighting-board—say six inches wide. If the entrance is made large, an inch deep or more by the depth of the hive, 99 bees out of 100 will fly through the entrance and strike the bees hanging down under the frames. The hundredth one would strike on the alighting-board. If the hives are raised off the ground, the alighting-board must be ample in size—that is sure.

In our 1904 model of hives the alighting-boards are six inches wide and detachable. When turned one side up, the entrance is contracted down to $\frac{1}{4}$ inch deep by 8 inches wide. When turned the other side up, the entrance is $1\frac{1}{2}$ in. deep by the width of the hive. Or if the alighting-board is pulled out entirely, and it is slipped under the hive in the case of a newly hived swarm, the entrance will be $1\frac{1}{2}$ deep by the width of the hive. So much for alighting-boards for overcoming one difficulty.

But there is still another objection, and one that is of far greater weight in hot countries than in the North. We will say one colony is being robbed badly. It is often desirable to set a bee-tent over such a colony to protect it in the mean time. How would I overcome this objection? Why, set the bee-tent over both hives, or put the robbed colony down cellar till we get a chance to contract the entrance, and the robbers have eased up.

I should like to hear from some of our subscribers who have tried these hive-stands up on stilts, we will say. As I go through the country I find all sorts of supports for the hive; and I have seen not a few of the pattern I have shown in this issue.



SMOKERS AND EXTRACTORS.

Hinging Smokers; the Crane Valve; Double-pocket Reversible Extractors; High Speed in Extracting; Wiring Frames; Getting a Swarm out of Elevated Position without Climbing.

BY ADRIAN GETAZ.

In answer to a request made some time ago in these columns I will give a little of my experience with smokers.

In the first place, I decidedly object to breech-loading. I want the fresh fuel on top of the other, and a wad of grass or wet shavings in the nozzle, so as to arrest the sparks and cool the smoke. In breech-loading, the first charge would fulfill these conditions; but in the subsequent reloading, the fuel already half burned will be pushed toward and into the nozzle. Until your attention is called to it, and until you observe closely, you have no idea how many bees are injured and maimed by the hot burning smoke. I do not want any so-called cold blast, or any admittance of air with the smoke, as it impairs its efficacy, and cools it but very little after all.

I have had trouble with all my smokers from the hinged tops flying back instead of remaining closed. At last I filed the hinge some, and put in a thin wire in place of the split pin. This gave sufficient play at the hinge to permit the nozzle to settle well on the fire-barrel.

Some four years ago I bought two Crane smokers. One is in use yet; the other is worn out—that is, the fire-barrel is. I bought another last fall, but it is not so good. There is too much space between the valve and the air-passage to the fire-barrel. The two first ones closed pretty tight, as shown at 2.

The last I bought has the air-passage flaring like 3, and there is too much air lost between the valve and the air-passage. I presume the defect is accidental, and due to some carelessness of the workmen. I have remedied it.

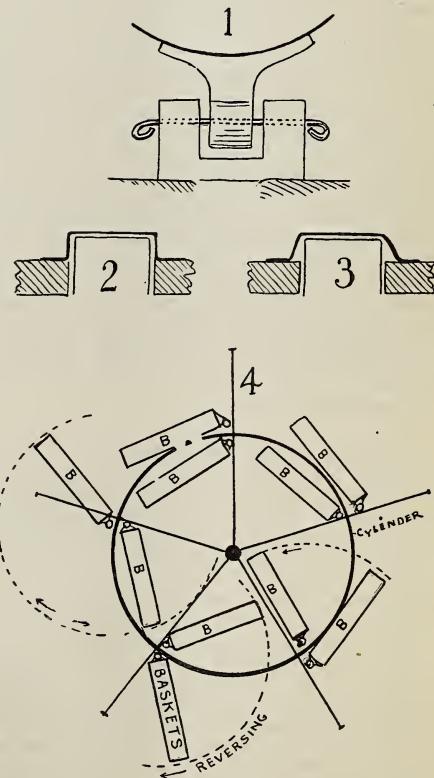
I note that complaints have been made that the Crane valve does not work well soon after the smoker has been in use. I had the same trouble. A thorough cleaning of the accumulated creosote did not mend the matter much, so I concluded that the trouble must be somewhere else. I soon discovered that the valve was too tight in the hole of the bellows. It was easy to fix the thing right, and that ended the trouble. The creosote does not accumulate in sufficient quantity to cause trouble. The movement of the valve prevents this.

Now, why did the valve work well at first, and in a few weeks was too small, or, rather, too tight? This happened to both smokers.

The only answer that I can give is that, in making your smokers, you use kiln-dried lumber, and at the first damp weather such lumber swells back to its natural size.

I am impatient to see what sort of motor you will offer for sale to run an extractor. I need a motor for some other purpose; but so far I have not found any thing exactly to my fancy.

With a motor you will want an extractor taking at least ten combs at once. I would suggest putting the combs on two rows, or, rather, two circles, and a sheet of tin between the two to catch the honey from the inside row, as shown at 4.



A higher speed may also be desirable. Some of the French makers now advertise extractors geared very high, and claim that the combs can be extracted practically dry. It is necessary to extract most of the honey at a low speed first, and finish at the higher speed, otherwise the combs would be broken.

Special baskets should be made to hold sections. It is often desirable to extract the partially filled sections.

Some discussion arose in these columns on the way of putting wire in the frames.

I tried again the way you describe, but with no better success than before. What makes it still worse is that my frames, being deeper than the standard, I have to put in five or six wires. But even with four wires it does not work well.

After studying a little as to what was the matter, the idea struck me that you probably use wire from large coils, and are therefore not troubled by its kinking. We bee-keepers use altogether too small spools; and unless we manage to keep the wire stretched all the time there is no end to its twisting, kicking, flying off, and kinking.

I had a considerable amount of swarming to contend with this year. One of the swarms lodged at the end of some limbs where I could not get at them. I did not want to cut the limb and let it down. I happened to have a tin bucket with some honey in it. I tied the bucket to the end of a long pole, or, rather, two poles tied together, end to end, and managed to raise the bucket to the swarm. A little brushing or moving of the bucket sidewise soon got the bees in; and what did not fall in went in voluntarily to take part of the feast. The rest need not be described.

Some one recommended smoking a colony which is in the act of swarming, to stop the proceedings. That's all right, so far as it goes; but water is much better. If the one who watches is quick enough with his bucket of water, and any kind of brush, he will have no trouble in preventing the bees from taking wing and stopping the queen from flying, as well as the others, and, in most of the cases, be able to catch her if he wants to.

Knoxville, Tenn.

[The breech-loading feature of the Vesuvius has been dropped. This same smoker now loads from the top, but on a different principle from any heretofore employed. The fire-chamber telescopes into another chamber of the same length, but of a slightly larger diameter, so that the smoker can take long or short fuel, and, what is more, will not leak smoke except at the snout.

The Crane valve can be made to work satisfactorily with those who are careful enough to keep the working parts clear. The plan you propose would be feasible except that it would have a tendency to leak air. If this is the case, we might just as well use the Corneil-blast arrangement, which will not clog with creosote, and which, under like circumstances, would give about the same blast.

We have been experimenting with a motor-driven extractor, using a $1\frac{1}{4}$ -horse-power air-cooled gasoline-engine, the same as is used in ordinary motor cycles. We can make it work; but the serious question in my mind is whether the average person unfamiliar with gasoline-engines of this type could make it go when he wanted it to. We can make the extractor hum at almost any speed desired, by moving back and forth the spark-lever which also oper-

ates the band-brake, controlling the reel of the extractor.

Before we dare to offer the outfit to the public, we deem it best to do a little more experimenting; but at the present time I am of the opinion that a bicycle-engine will not be as satisfactory as a larger one using water for cooling. The working parts are less intricate, and less liable to get out of order. A water-cooled outfit of, say, one-horse power, with an eight-frame reversible extractor, would cost about \$100. The expense of coupling the two together, in such a way as to provide suitable speed, would be from \$10 to \$15 more.

Your plan of putting a sheet of tin between the two pockets, as proposed, would not work, if you will stop to think a minute. The tin will catch the honey thrown from the outer pocket; but when you reverse the two pockets, bringing this surface the other side to, it will throw the honey back from the tin into the next comb.

Yes, we use wire from large coils, and are never troubled by kinking.

Your scheme of getting a swarm from the top of a tree, without climbing after it, is good. Sometimes the swarm is so high that three or four poles fastened together will not reach it. Then nothing but climbing or using a shotgun will do the work.—ED.]

SMOKING BEES, ETC.

Use and Abuse of Smoke; the Difference in Colonies; Drones as Heat-producers.

BY J. M. GIBBS.

My feelings are hurt every time I think about the way some bee-keepers smoke their bees, as well as the way some old bee-keepers advise smoking them in order to conquer them. I have observed that bees do not succumb to smoke "just for fun," but because it hurts them. I have no idea how intensely they suffer from it; but I know that the suffering is great that will drive them from their homes and "little ones" to take their chances in the open air, and this they may be made to do if enough smoke is blown on them. I find that a very little smoke (applied frequently) will conquer any colony, and that a large per cent of Italians may be handled without any smoke whatever, and that more vindictive ones may be managed with but a single "whiff" over the tops of the frames. For the sake of the dear bees I want to describe my method of smoking them.

My frames are covered with "duck," or oiled cloth, and are mostly air-tight, so that, when the hive-cover is lifted off, not a bee can be seen under it. No holes are allowed in these sheets to admit air or to allow the bees to sally out through and begin the fight before you are ready. I stand at the left-hand corner of the hive (looking from the rear), and remove the cover with my left hand. I then take hold of the cloth or

sheet (covering the frames), with my left hand catching it at the extreme right-hand corner. I hold the smoker in my right hand with the nozzle close to this right-hand corner, and pull the cloth back just enough to admit a little smoke, forcing the bees down as I pull the cloth back, the object being not to let a single bee fly from the tops of the frames.

A very vicious colony may need the smoke frequently; but large volumes (in my experience) are unnecessary with any sort of disposition. I have some hybrids that require smoke every time a frame is moved; but the lightest possible blast is sufficient to keep them down. By manipulating the opening-up of the hive as I have described, it will be a rare thing for a bee to fly from the top-bars. I have never found a single good reason for smoking the entrance to the hive. My bees do not bother me from that point. I just let them work away, and they will do so if not stifled with smoke from the top. I have seen them, when not "stifled to death" with smoke, working away seemingly as if the hive had not been disturbed. Before I learned how little smoke was really necessary I demoralized my bees to some extent every time I worked with them, and the demoralization was apparent some days afterward. I prefer to "fool away" my time trying to produce a race of bees that can be "handled" without smoke, in preference to that of trying to evolve a race that will not swarm, which last-mentioned "feat" will never be performed. The non-sitting breed of hens has never been produced, yet there are breeds that are less inclined to sit than others; but there are hens, and lots of them, among these so-called non-sitters, that will sit in spite of any thing (sometimes), and they make good mothers. I happen to know from experience.

Some of our domestic animals have been domesticated for four or five hundred years, and they show habits, instincts, and dispositions to-day that their ancestors transmitted to them in the "long ago." I am persuaded that, where these instincts bear upon the propagation of the species, and the welfare of the young of the different animals, fowls, or insects, they are surely God-given, and should not be bred out. Bees swarm, mostly, for want of room at the time they need it, or at the time they think they are going to need it, and sometimes they swarm anyhow, and no one can tell why. Give them an abundance of room before they have started queen-cells, and few colonies will ever swarm. I have a neighbor who has twenty colonies in two-story ten-frame Simplicity hives. He extracts from the upper story, and sometimes in a good flow he puts supers on his best colonies. He hasn't had a swarm from those bees in three years. His bees are natives. Now, if he were to Italianize, and get some very prolific queens, some of them would fill these "double deckers," and swarm; or if he would take off that top

story, and keep it off, they would swarm just for want of room.

THE VALUE OF DRONES IN A HIVE AS HEAT-PRODUCERS.

He who arrives at the conclusion that drones are worthless except as male functionaries of the hive arrives (I think) at a very unwarranted conclusion. I am fully convinced, from this season's experience, that drones pay for their keep by supporting the temperature of the inside colony, and that the bees hustle with a greater degree of energy where there are drones, especially those colonies that have drones in large numbers. I got my proof for the above in the following manner:

I bought some bees early in the spring in box hives; and when transferring them I noticed that two of the colonies had an unusual amount of drones, and drone brood which I transferred. I later discovered that these two colonies, which were working very strongly, were one-half or more (in bulk if not in numbers) drones. I was anxious to destroy these black drones, so I placed these hives over excluders on their bottom-boards, and dumped every thing on the outside. Of course, I got all of the drones that had hatched. I succeeded so well in destroying black drones in this way that I proceeded to do some more of it; and, to my astonishment, I demoralized some of my strongest colonies. Some of them were at work in the supers, and immediately left off, while three of the strongest drone colonies (to my knowledge) have never recovered their former energy. I observed, too, that these colonies did not swarm. I am persuaded that, by destroying the drones, I reduced the temperature probably enough to chill the brood, or at least enough to make it necessary for a large number of the field bees to abandon their work and take care of the indoor work, especially to keep up the temperature. I have seen drones lining up with the workers to raise the temperature when building comb. To say the least about them, sober "men folks" about the house are usually a great consolation to the female portion of the family, even if they are not very industrious.

I honestly believe that bees know more about some things than I know. It might prove that, for queens to do their best, it is necessary for them to lay drone eggs; at least they may have their own way about drones until I see further, so far as restricting the rearing of drones by the Italians is concerned.

Statesville, N. C.

[I do not remember that any one has, in our columns at least, recommended smoking a colony needlessly. Beginners, however, will very often use too much smoke because they are not able to determine when the bees are subdued or peaceably inclined. It is my rule to use very little smoke except in the case of a very cross colony, and even then I seldom blow any in at the entrance.

One or two whiffs blown over the tops of the frames—not down between the combs, is quite sufficient for the average Italian colony. A great many bee-keepers do not use a quilt; and when a cover-sealing is broken, the bees at the top may resent the intrusion, and it is well then to give them notice that they had better stand back. Nor is it necessary to blow their eyes out to do it. Smoke properly used with proper management will not harm in the least any bees. But I sometimes think the practice of smoking bees out of comb-honey supers, blowing quantities of it down through the super, is carried to the extent of cruelty; and if an agent of the Humane Society were present he might cause a stay of proceedings, and rightly too. The modern escape will do away with a great amount of smoking; but there are times and circumstances when one is in a hurry at an outyard, when more smoke can be used—enough to drive, but not enough to cause excessive pain to our poor little friends. Coggshall's method of snuffing smoke down into the brood-nest with a quilt, a very little of it, I am sure, would never cause any pain, and yet would save a good deal of time.

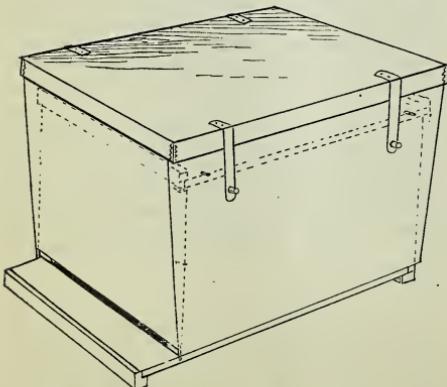
Regarding the value of drones as heat-producers, there are some who would take issue with you, notably C. P. Dadant. See page 872.—ED.]

WINTER HIVE PROTECTION.

Winter-cases of Strawboard; is the Plan Feasible?

BY D. R. THOMAS.

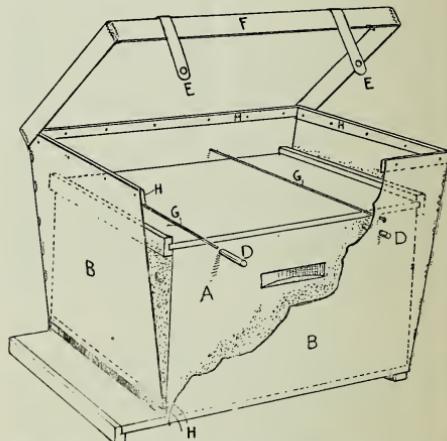
From this latitude, north, we need some outside protection for our bees in winter; yet few use any thing—mainly, I think, because of the relatively high first cost, then the later bother of storage. I don't see any way of remedying either evil so long as we



D. R. THOMAS' STRAWBOARD WINTER-CASE.

depend upon wooden cases. But why depend upon wood when thick cardboard is so cheap, light, and strong? The cases

could be made to fit too close for the packing material (cut straw) to run out at the bottom, and about two inches larger at the top. The corners might be fastened with tin—the kind with edges like saw-teeth, which go through the board and clinch. Made in this way, almost any number might be nested and shipped in a small crate. Also the economy in storage and handling is at once apparent. The objection might be raised that the sides would spring out when the packing material was put in; but I think that could be nearly obviated by packing the corners first and doing it pretty tight, then filling the middle not quite so tight.



THOMAS' STRAWBOARD WINTER-CASE DISSECTED.

The covers could be made like ordinary box-covers, with the rims flaring, so they too would nest. They would fasten on with small inexpensive tin fastenings; and a small wire at each end of the case, fastened to these same tins, would prevent the cases from slipping down too far over the hive. Two coats of good paint on the outside would complete the job, and make a light, inexpensive, wind-proof, weather-proof winter-case, twenty of which could be packed in the space ordinarily required by two.

Odin, Mo., July 23.

[Although lumber is very high, and getting higher in price, it is my impression that a winter-case made of $\frac{3}{8}$ boards would be still cheaper than one made of strawboard, unless the material were used so thin as to be unsuited for the purpose. A strawboard case as here illustrated ought not to be made of material less than $\frac{1}{8}$ thick, and $\frac{1}{4}$ would be better. If properly painted and carefully handled, both when putting on in the fall and taking off in the spring, it ought to last a good while, and give good service. The time may come when we shall have to use strawboard or some material which can be grown inside of a year.—ED.]



VENTILATION BETTER THAN SHADE; RAISING HIVE-COVERS INSTEAD OF SHADING HIVES.

Much has been said of late regarding the advantage of sheds and shade-boards for bees. I find no use for either. To me, shade-boards with rocks to keep them in place are most unsightly unless they are of uniform size and neatness, besides the extra tons of lifting one has to endure all through a honey season.

As to sheds such as I see pictured in GLEANINGS, it would completely rob my bee-yard of all its attractiveness. Experience with my apiary of 153 colonies, spring count, now 204, from which I have extracted over 12 tons of honey, has demonstrated to me that my bees need neither shade-boards nor sheds. Early in June we had a hot day. My bees clustered outside their hives. I discovered several combs melting down. I did what I have practiced other years. I hurried through the apiary, and in a few minutes had every cover lifted, and resting on its cleat. In this condition they have been and will remain until the end of September, when cooler weather prevails. During extracting, the heat oft-

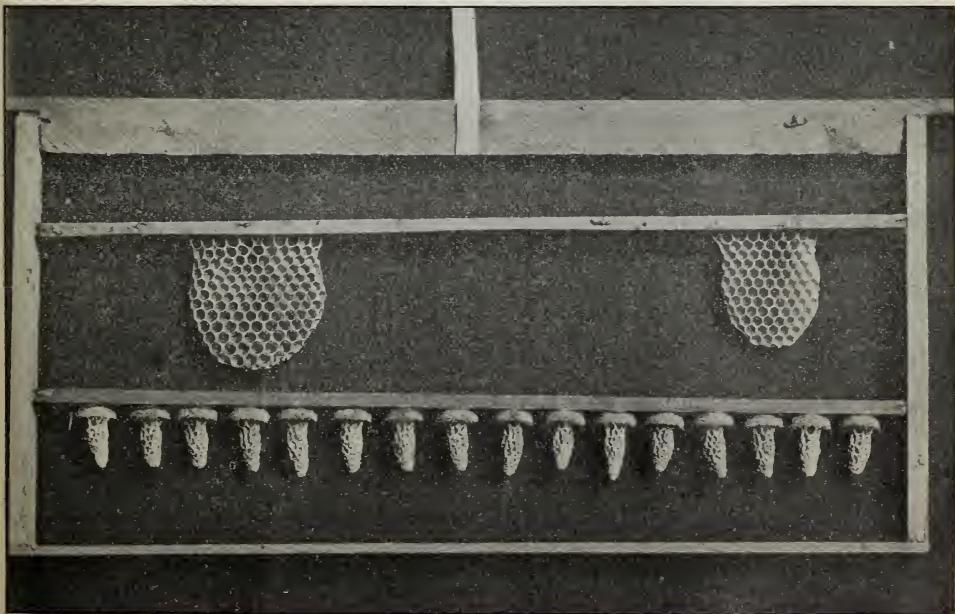
en reached from 105 to 115°, much to the discomfort of the apiarist; but apparently it was just to the liking of the bees. Who wants sheds or shade-boards if this method is practical?

JOHN BOWEN.

Calabasas, Cal., Aug. 28.

[Ventilating at the top has been advocated before; and in some localities, where the temperature runs above 100, the practice is a very good substitute for shade-boards and sheds. Indeed, I am not sure but it is even better; but it would not answer in localities where the temperature is below 100, for it is very seldom that supers will be too warm for comb-building (especially for fancy well-filled comb honey), and particularly at night; and I should question whether top ventilation would work in some of the deep canyons of California. In the one where M. H. Mendleson is located I remember the nights were quite cool, and a thick woolen blanket over us at night was very comfortable.

For the production of comb honey I should somewhat question whether top ventilation in *any* locality would be desirable. In Arizona, for example, bee-keepers run very largely for comb honey. Comb-building, to progress satisfactorily, should have a warm tight super. If it gets too hot, and the entrances be sufficiently large, the bees will cool the hive by fanning at the entrance, a cold-air current going in and a warm one coming out. I should be glad to hear from bee-keepers in various portions of California, Arizona, and other parts of our country where the temperature runs up to 100 or more.—ED.]



STANLEY QUEEN-CELLS REARED ON STANLEY GUN-WADS; SEE MAY 15TH GLEANINGS.

INTRODUCING TWO VIRGINS AT A TIME;
SMOKER FUEL OF OLD SACKING.

Mr. Root—I am quite interested in your experiments in introducing two virgins at one time. Some fourteen years ago I did the same thing in another way, using the cage illustrated on page 220 of the A B C book. In this way a hatching cell was placed on a piece of comb having hatching brood and some honey, and covered with the cage. Some days after the virgin was hatched, the old queen was caged in a similar manner (if not wanted otherwise), the young virgin released, and another cell treated as the first. On very old comb it worked like a charm; but as that was not always obtainable in just the right condition I thought about getting some foundation made with a wooden midrib. However, just afterward I went out of the queen-rearing business, and have not tried it since then.

I wish you would try for a week my smoker fuel, and do it this way: Take an old sack, and with a hatchet or knife cut it in strips three inches wide, then roll it tightly around a tapering stick one-half inch at the small end until the roll is large enough to fit the smoker tightly. A few hot coals will light it the first time, or it can be easily lighted with a match and a few shavings. After the first lighting in the morning I scarcely ever have to light the smoker again all day. Simply put in another wad on the old coals, often driving from the home yard to one of the out-apiaries, and finding the smoker ready for use without relighting or recharging.

Please note that I used wire cloth, not perforated queen-excluder, as I find the same trouble with it that you do.

H. FITZ HART.

Wetumpka, Ala., Sept. 5.

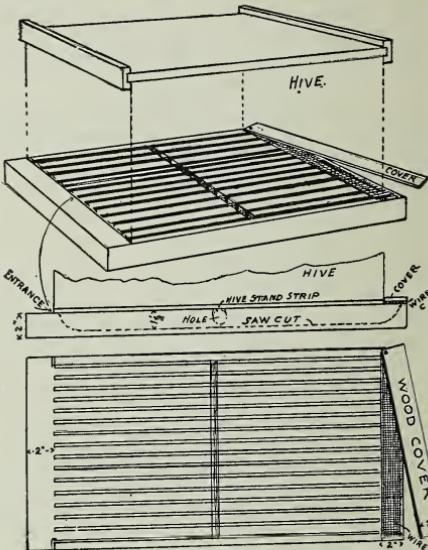
[Our plan of introducing two virgins at a time seems to work under all conditions—before the honey-flow, during it, and after it. Experience has shown that a method that works satisfactorily during a honey-flow may be any thing but a success before or after.

Your smoker fuel, I believe, is all right. Mr. W. L. Coggshall has a plan that is quite similar, except that he rolls the sack into a long roll. When of sufficient diameter to fill the smoker nicely, he chops it up into suitable lengths after it has been tied with strings. A few live coals dropped on to the grate will readily ignite a bundle of this sacking, and will give a pungent and lasting smoke, says Mr. Coggshall.—ED.]

LEACH'S BOTTOM-BOARD FEEDER.

Being a bee-man (on the side) for some years, I have constructed a feeder of my own make, and used it for the last two or three years. It gives me perfect satisfaction, and a proper one to my notion, to be used at all seasons of the year. I call it a bottom-board feeder.

This is made of pine plank, 2 in. thick, with saw-cuts made a bee-space apart, and 2 in. from front end, and $\frac{1}{2}$ inch from the back end. The feed is poured in at the back of the hive, where wire screen is used to prevent bees from getting out. This is also covered with a strip of wood to shed water. There is no robbing, and a small



or large quantity of feed can be given at a time. My bees have taken up 10 lbs. in one night.

I notice an item in July 1st GLEANINGS about feeding from the bottom. It is the proper way when you have the proper fixture to do it with. I use loose bottoms with staples so they can be easily removed, and I can feed from $\frac{1}{4}$ lb. to 15 lbs. at once.

L. T. LEACH.

Orillia, Ont., Canada, July 10.

[So far as feeding bees is concerned, with a bottom-board such as you describe, the plan could be successfully employed; but the expense of it—ah! there's the rub. The two-inch plank grooved out as shown in your drawing will be as expensive, almost, as all the rest of the hive; and, besides, it would check so badly after using it a season or two that it would be utterly worthless. It is well to bear in mind that an improvement or invention must not be too expensive or it will never come into general use. A good many bee-keepers, however, tilt up the hive and pour syrup in at the entrance. The ordinary bottom-board, after it is propolized all over inside, will hold two or three pints of syrup without leaking.—ED.]

AN EXPERIENCE IN MOVING BEES IN HOT WEATHER.

A few days ago I had occasion to move a few colonies of bees. They were in new

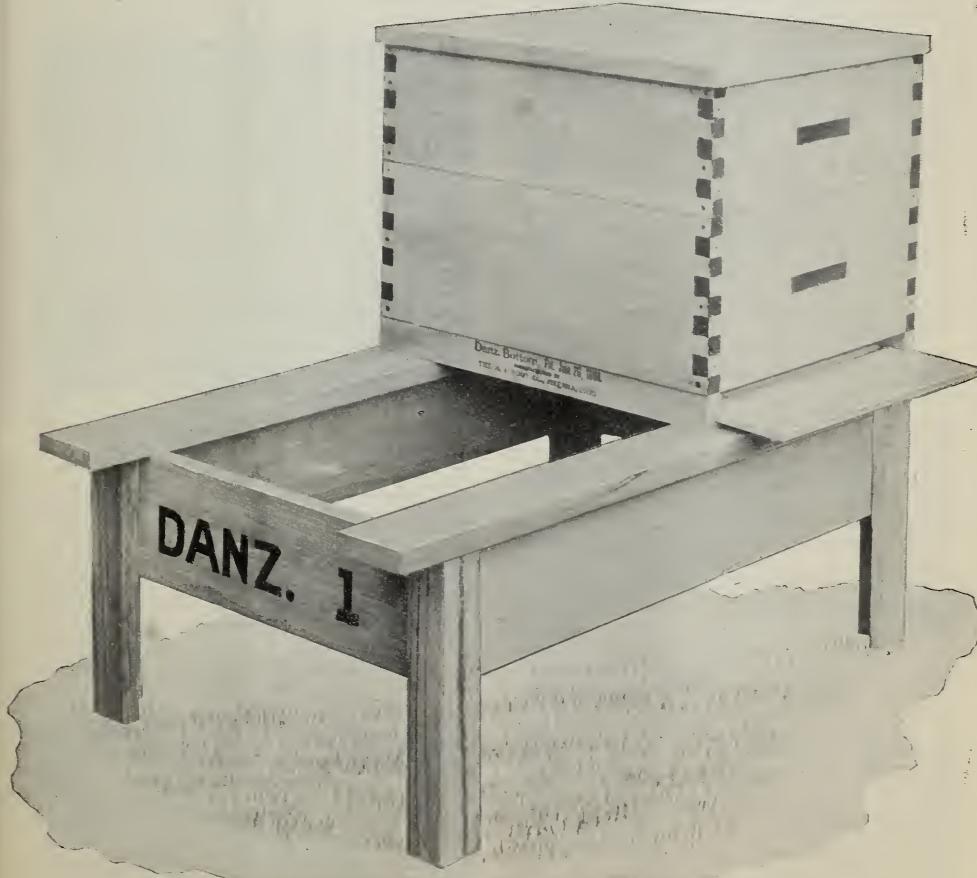
Simplicity hives, one-story, *very* full of bees, and *very* heavy with honey in frames *not* wired. How to take them (a little over 20 miles) on a wagon heavy enough to haul sixty hundred over these California grades in the heat of the day, in the hottest part of the year, was the question, and here is how I did it with almost entire success.

To prepare the wagon I put boards across the middle in front, and back of a space large enough to receive the hives, and filled it with hay 6 or 7 in. deep. I took an empty hive, tacked a piece of wire cloth over the top, took off a hive-cover and put the empty hive on, fastening it by tacking two strips up and down each side, and nailing the entrance up tight. I then took pieces of heavy paper, such as is used under carpets, and tacked to the sides of the hives, letting it bow up like a wagon-cover 6 or 7 in. above the wire cloth, and projecting at each end. I set the hives on the hay, and moved up the board across the wagon-bed so they would keep the hay close up to and under the hives, and passed

a wire around the hives so they could not slide about.

I did not get started for home until a little after 1 P. M., and it was dark when I got home. The day was warm enough to make my horses sweat more, with the three colonies of bees, coming home, than going in the day before with a load of nearly fifty hundred. Before I had been on the road an hour, in one of the hives the bees had found a leak at one of the entrances, and several dozen got out and buzzed about my head and face some, and two stings were the result. I was on a long grade, and meeting a good many teams, so I could not stop, as I should block up the way, and might get some one into trouble; but as soon as I got to the bottom of the grade I got the leak stopped, and saw no more of the bees; but I think I found them all on top of the screen when I came to open the hive the next morning.

When I reached home I set off the bees at the yard, and the next morning at daylight I placed them where I wanted them to



THE CALLEBFATH HIVE-STAND AS MODIFIED BY FRANCIS DANZENBAKER.—SEE EDITORIALS.

stand, took off the screen cloth, and opened the entrance and put on the covers. I did not get time to look at them until the second day after, when I found them all right except two frames in one hive, one solid with honey, and the other solid with honey, and a little brood broken down.

A. J. BURNS.

Black Mountain, Cal., Aug. 24.

[Although you do not say so, I take it that the pieces of heavy paper which you tack over the top of the hive in the form of an inverted letter U were to shade the bees and the combs.—ED.]

WHO FIRST DEVISED THE BREECH-LOADING SMOKER?

Friend Root:—I see by your issue for July 1, page 594, that I am likely to come in conflict again with the Root Co. Before, it was an adjustable bottom-board to a hive; but now it is in regard to smoker construction. Several years ago I was in need of a smoker, so I thought to improvise one from material I had at hand. Two pieces of board and some sheepskin and wire springs constituted the bellows. A tin baking-powder can with the bottom knocked out was the basis of the fire-box. In place of the bottom, a metal nozzle, conical in shape, was fastened in the place of the bottom. A wooden handle was made fast to the cover; a wire screen fitted into the nozzle at its junction with the tin can, and the whole

was attached to the bellows as herewith shown. You see my smoker was a breech-loader, as the nozzle was fastened to the other end of the fire-

box tightly. The can-cover removed shows at the right.

I afterward constructed several smokers for Mr. F. S. Hall, a Georgia bee-keeper, upon a different plan, his idea. Then afterward I built one for my own use, with a fire-box of sheet iron to slip into the outer tin case from the upper end, as herewith shown. A shows the sheet-iron fire-box removed; *a*, feed-hole; perforated bottom is seen at the right of *a*. Both the top and bottom of this sheet-iron tube were perforated.

Last season I planned some improvements in the fire-box, and began the construction of a new smoker, as here shown, but have not had time to finish one for this season's use. 1 is the tin casting, with vent-holes to let out the heat; nozzle firmly attached to the casing; perforated plates at *a*. 2 is a sheet-iron fire-box open at each end, having a perforated plate at *a*. 3 is an ash-box slipping over the end of the fire-box. 4 is a perforated plate.

You will see that this is a muzzle-loader, but slipped into the outside casing from the

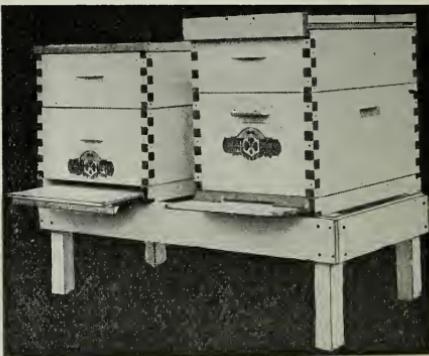
bottom end. You will also notice in the smoker I went back to my old original baking-powder-box smoker, only adding the loose sheet-iron-cylinder fire-box. I have some other improvements in the valves and in the construction of the bellows which I am working out.

I thought best to explain this to you, so in case I "come out" with a new smoker you will not suggest that I borrowed my ideas from your new smoker illustrated on page 594, as before mentioned.

C. F. PARKER.

Mentone, Ala., July 9, 1903.

[I will explain to our readers that Mr. Parker used a tilting-floor bottom-board before we brought out the one illustrated in the catalog of this year; but the tilting feature proved to be so unsatisfactory that, after one season's use, we abandoned it; and the same is true of the breech-loading feature in smokers—another feature in which Mr. Parker has anticipated us. But the breech-loading feature goes away back to 1864, in a patent that was issued to a Mr. Kidder. A more modern application



THE ROOT-CALLBREATH HIVE-STAND.—SEE EDITORIALS AND P. 885.

of it that would apply to bellows smokers was anticipated by Mr. G. W. Brodbeck in 1892. But Mr. Brodbeck, if I am correct, replenishes, not by the breech-loading but by the muzzle-loading part of his smoker. It is a difficult matter nowadays to make an entirely new discovery or invention; for example, the dual plan of getting queens, as mentioned in this issue by A. I. R.—ED.]



CEDAR FOR SMOKER FUEL.

Did any of the bee-keepers ever try cedar wood in their smokers? That will make the water run out of your eyes, ahead of rotten elm wood, and makes a dense smoke. A puff or two will quiet angry bees in short order.

ELAM MOYER.

Blandford Station, Ont., Aug. 24.

CONVENTION NOTICES.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held in the Court-house, at Rockford, Ills., on Tuesday and Wednesday, Oct. 20 and 21, 1903. A good program is being prepared, and all interested in bees are invited to attend.

Cherry Valley, Ill.

B. KENNEDY, Sec.

The Connecticut Bee-keepers' Association will hold their fall meeting in the capitol, at Hartford, on Nov. 4th. All bee-keepers are cordially invited to attend. For full information write the secretary.

Watertown, Conn.

MRS. EDWIN E. SMITH.

The annual meeting of the Hamilton County Bee-keepers' Association took place Monday evening, Sept. 14, at the Grand Hotel, Cincinnati.

The secretary, Mr. W. J. Gilliland, read the minutes of the meeting held September, 1902, when the Association was organized. The by-laws were next read, and, together with the minutes, were approved as read.

Upon roll-call of officers and members, it was learned that 47 members comprise the Association.

The secretary was then called upon to read the minutes of the various meetings, beginning from the first meeting last September, up to the present time. This proved very interesting to all present, for in the mind's eye one could see the gradual growth of the Association like unto a rosebud about to cast its splendor upon the light of day. Our Association has just begun to unfurl its petals of progress, but in a short time we shall stand forth as an association of more than minor importance.

Quite a treat was now in store for us, and it was the secretary's report of the past year. Mr. Gilliland, who is an able bee-keeper, speaks of the association as having been successful in the past year. When the Association was organized 29 members were recorded; and in the course of twelve months 18 new members were added; and we may congratulate ourselves on the prospect, for it is obvious we did not strive in vain.

The question of foul brood prevailed throughout our monthly meetings. The formalin-gas treatment was brought to the foreground, and was discussed pro and con time and again. A number of bee-keepers were enthusiastic to have this treatment adopted by the society, and lost no time in putting its merits to a test by fumigating the infected combs. The result in every instance was a complete failure.

The Association thereupon adopted the McEvoy treatment, which is recognized and acknowledged in America, Canada, and Europe as the most successful remedy known, at the present time, for the permanent cure of foul brood.

Cincinnati being centrally located, the society is making an effort to bring the National Association of bee-keepers there in 1904. This should receive no little consideration; for, without a doubt, should the Association be successful in its efforts it will prove beneficial both to commercial and business interests of the "Queen City."

The editor of GLEANINGS has very kindly placed the columns and the influence of his paper at the disposal of this society. This favor conferred upon us by the editor is fully appreciated by all interested in apiculture in this vicinity.

Having finally disposed of the foul-brood question, it is now the duty and should be the ardent wish of every bee-keeper in Hamilton Co., and vicinity to become energetic in placing on the statute-books of Ohio suitable laws which will protect the honey-bee as well as the various interests connected therewith.

With this suggestion the secretary's report was brought to a close, and was accepted as read.

Those present at the annual meeting were afforded an excellent opportunity to examine specimens of foul brood, a fine grade of comb honey and an active frame of working bees in an observation hive.

The treasurer's report was read and accepted.

After the collection of the annual dues, the election of officers for the ensuing year took place, and resulted as follows:

President—Mr. Henry Shaffer.

Vice-president—Mr. John C. Frohlicher.

Secretary—Mr. Wm. J. Gilliland.

Treasurer—Mr. C. H. W. Weber.

It was then moved that an amendment be made to the constitution, viz., that twelve members serve on the executive committee instead of six, thereby promoting a wider scope for enthusiasm and increased interest among the members.

The following members were chosen to serve during the coming year: Fred W. Muth, R. L. Curry, A. E. Painter, Chas. Kuck, E. P. Rogers, E. H. Chidlaw, Wm. McClellan, W. R. Gould, G. Green, E. H. Vaupel, Miss Carrie Boehme, Mrs. J. C. Frohlicher.

Mr. A. E. Painter, an able lawyer and bee-keeper, favored the assembly with an eloquent address pertaining to the active interest which should be manifested among the bee-keeping fraternity to interest the State Legislature in procuring a foul brood law, which would be an inexpressible advantage to the Association, and all bee-keepers in general. Mr. Painter deems it advisable to appoint a special committee to go before the legislature at Columbus; but before doing so, however, he is of the opinion that it would be prudent to send a circular letter to each member of the legislative body, in order that all may have time for consideration and argument. This method would undoubtedly prove more effective to the interest and energy displayed by the committee.

A few States have gained their point and are now resting easy under the protection of a foul-brood law. A commissioner is appointed to notify all bee-keepers whose apiaries are infected with the malady to destroy all such colonies, or, if possible, remedy the defects. This commissioner is paid out of the county's funds. Illinois, for instance, is allowed \$1000 annually for this purpose.

If some of the States have been successful, why can not we in Ohio, who have so many broad-minded, brainy men in our midst, dwell under a like protection and advantage, which might correctly be termed a necessity? There has been but one cause heretofore, and that cause the lack of interest. 'Tis true we are all interested in a way, but we must show active interest, which, without a doubt, during the coming year, will wend its way and waft its breezes among the bee-keeping fraternity, over our entire State.

Short but none the less interesting addresses pertaining to the protection of the honey-bee were ably delivered by Messrs. E. H. Vaupel, Wm. McClellan, and Fred W. Muth.

A motion was made and seconded that the members of the executive committee constitute the committee to bring before the State Legislature this question of foul-brood law, to be energetic and tireless in their efforts to render the same effective and successful; for in this way only can our ambitions be gratified.

Mr. W. J. Gilliland suggested that a census be taken of the bee-keepers in Ohio, as well as the number of hives each bee-keeper possesses.

Mr. Fred W. Muth again called on the assembly to put forth all possible efforts in securing the National Association of bee-keepers in 1904. It was moved and seconded that the executive staff take up the matter immediately.

A motion was made and seconded to express our gratitude to the managers of the Grand Hotel for their kindness in granting us the privilege of holding our meetings in their spacious and comfortable apartments.

A word in behalf of the Association in general. We are proud of it, and we have the right to feel so. When our little body of bee-keepers nestled in a group to form an organization, many predicted any thing but success, and were firm in their belief. Our little assembly, however, was not to be daunted. They knew that they were entwined by the circle of success, and were firm in their determination not to step beyond the bounds of this brilliant circle. Their progress in so short of space of time is indeed greater than they themselves anticipated. And now since GLEANINGS has so kindly volunteered to be our guide and friend, we can do naught but win.

Silverton, Ohio.

Wm. J. GILLILAND, Sec.



Fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both soul and body in hell.—MATT. 10:28.

A father was coming home from his work one evening. I rather think his home was a new one, for both himself and his children seemed a little unfamiliar with the surroundings. As he came in sight of this home his boy Johnnie started out on a run through the tall grass crosslots to meet him. The father smiled when he saw his boy so anxious to greet him on his return; and when the boy tumbled down in the deep grass he did not think very much about it. He supposed the boy had stubbed his toe or got his foot entangled in the grass, and would soon be up again. Johnnie, however, did not get up. The father, reflecting a little, remembered an old unused well there in that tangled mass of grass and weeds. As the memory of this well came to his mind he hurried up, you may be sure; and, sure enough, the boy had stumbled into that old well. But I am happy to tell you the well was not very deep, and there was only a little water in it. Johnnie had recovered himself enough to get on his feet, and with his face bespattered with mud and tears he reached up his hands and said: "O papa! why didn't you hurry up?"*

Now, friends, let us consider, if you please, whose fault it was that Johnnie fell into that old well, soiled his clothes, and made his poor mother a lot of hard work in getting him clean again, even if he was so fortunate as to sustain no injury. I think you will all agree with me when I say that Johnnie himself was a good deal to blame. Anybody, even a child, should be careful about running headlong in a place where he is not perfectly acquainted with the locality and surroundings, especially where it is grown up with grass and weeds. Of course, parents often say, "Let the children tear around and learn these hard necessary lessons by experience, even if the experience be somewhat bitter at times." Such talk will do very well; but, if I am not mistaken, Johnnie's father blamed himself, and perhaps quite vehemently. The father was greatly to blame for not making himself acquainted with the dooryard and its surroundings where he chose to locate his wife and children. Just the minute he discovered, or had an inkling that there was an old well where children might stumble, he should have covered it up, put a fence around it, or at least have cut away the weeds and grass with the scythe so that every one could see at a glance the danger that lay in that di-

rection. The father who permits a well or cistern to remain uncovered should be remonstrated with. If he does not at once heed the remonstrance he should be compelled by law to take care of such dangerous places where children or other people might pass in the dark.

Not only is the *father* to blame, but the mother also. If she pleads in extenuation that she did not know any thing about the well, and never heard of it, this should not be a sufficient excuse. It is every mother's business to look carefully over the surroundings; and she should go as far from her home as any of her children are likely to wander. She should know by personal *inspection* whether or not there are open wells or cisterns where they may not only sustain serious injury, but perhaps lose their lives. Very likely many of you can remember where children in your own locality have lost their lives through just such carelessness.

And not only the mother, but the older brothers and sisters, if there are any, should be responsible. Yes, and the neighbors, if they know of such places, should be severely censured if they have permitted them to go uncared for. The town or city should have an ordinance making it a misdemeanor to endanger life in this way. And finally the whole State, or the United States, should, if it has not been done already, enact stringent laws, and punish the offenders by a severe penalty for slovenly negligence in the matter of which I have been speaking.

At a recent Sunday-school convention in Los Angeles, Cal., Dr. Miller was called on to speak. He said a boy here in this land is of more value than any thing else in the world. I think he quickly corrected himself by saying that a girl in this present age is worth almost as much as a boy, and possibly *some* people would think a little *more*. But I think you will all agree, that the boys and girls, say about the age Johnnie was when he fell into that old well, are the most valuable things the United States or the *whole wide world*, for that matter, has to look after and care for. We may thank God for the just and reasonable laws that we have for grown-up people; and I believe the tendency in recent times is to consider the health and best welfare of our boys and girls of fully as much (if not more) value as we do the lives and welfare of our grown-up people. Men and women can take care of themselves, in a measure, in a way that children can not. May God help us, not only to feel but to shoulder our responsibilities as American citizens.

Now, friends, I am not sure you will all agree with me, at once, when I say that, bad as it is for boys or girls to fall into an old well and lose their lives, there are worse things that *can* happen to our children than even this. When we hear of somebody who has lost his life by stumbling into a well, we raise our hands in

*I think I found the above incident in a recent issue of the *Sunday School Times*. The morals which I draw further on, however, are my own.

horror; and every man, woman, and child sends up a protest of blame and censure against one who is guilty of leaving such a place unprotected; but I tell you it is true there are worse places than these that our boys, and girls too, are falling into every day in the year, and yet there is no adequate stir being made about it. Some of you may say I am an alarmist, and that I magnify the dangers; but if you will read my text at the head of this talk I think you will be compelled to admit that the dear Savior recognized and emphasized just what I have been saying.

After Johnnie's papa lifted him out of the well the mother cleaned up his clothing, perhaps gave him a good bath, and he was as good as ever. The neighbors may have censured him a little for his childish heedlessness, but no one would think of laying it up against him. But suppose, my dear friend, a little later on Johnnie went to jail, or perhaps to a penitentiary, for some foul crime. Could the poor mother fix him up "as good as new" after such an experience? When he fell in the well, he soiled his nice clothing; but how about a soiled and stained character? Can the mother or the father wash out these stains? Can they prevent the story of his crime following him to the last days of his life? Away back in GLEANINGS I mentioned a poor girl who was rescued by the Salvation Army. When she was but a mere child she was "sinned against" by a certain *relative* who had been appointed her guardian. Those who knew the circumstances would hardly blame the child for what happened. When she was old enough she broke away from her life of sin, and was taken in hand by the *Salvation Army*, because nobody else would have her around. She was a Christian girl, skillful and competent; and in this day and age when household help is in such great demand, she found places without a bit of trouble, and kept them, until the story of the past came out; finally she went away from home trying to find a locality where they would not hear her former history. Do you know the result? Just as soon as the story of her misfortune (I am sure that is the right word) reached her new home she was promptly dismissed. Not a word was even mentioned of incompetency in any respect; in fact, they seemed to feel very sorry to part with her; but they could not think of having a girl in their Christian (?) home, no matter what her present life and conduct might be, whose character had been stained years before. Now, I do not say this is right. God knows my soul rebels against such injustice; but it is the way of the world. If the child had fallen into the well, and had been crippled for life—or I think I can go further, and say if she had lost her life—it would have been better in the estimation of many people than to suffer this very fall I have mentioned. If there had been no Salvation Army around, very likely she would have never heard about "Jesus and his love,"

and she would have gone down the customary path to a life of shame and ruin. In view of this, dare you tell me that I am mistaken when I insist there are worse places for endangering not only bodily life, but the life of the soul as well? and places that exist not only in our cities but in almost every small town and hamlet throughout our land? Our laws are progressive in many ways. They are filling up wells in our cities where boards of health have decided the water was unwholesome. They are making magnificent progress in getting rid of the cause of disease—especially contagious ones. Surgery is making great headway. Perhaps we are making *some* headway along the lines of the whisky-traffic; but, oh dear me! I presume there are thousands of our readers who will vehemently stand by me in what I have said about fencing off dangers in the way of covering wells and cisterns. Why, if somebody discovers a hole in a bridge on any of our country roads, no matter how great his hurry he goes and gets a rail or board, and sticks it up in the bridge so people driving may keep their horses out of it. It is a rather bad thing for a horse to get a broken leg on account of a faulty bridge. When men are digging through our streets putting in water or gas pipes, they are obliged by law to put a lighted lantern by the side of the ditch; and not only that, it must be a lantern giving a *red* light as a signal of danger; but who is there that takes the trouble to stick up a rail in front of a saloon? No! I do not mean a *saloon* after all. I mean a "blind pig" or a "speak-easy." These places are, for all the world, like the uncovered well in the midst of the weeds and grass. They are all through our prohibition towns, or nearly so. They profess to keep a restaurant, or sell "soft" drinks—perhaps it is a drug-store; and these things are like the weeds and grass, as the business is carried on "on the sly."

Perhaps you turn away from my talk, and think the matter is not so bad as I have presented it. But I am not alone in my protest against these things. Less than a week ago a foul murder was committed in Cleveland. This time, with commendable alacrity, the police summoned their forces, got evidence here and there, and in less than a week had the two murderers behind the prison bars, and their pictures appear in the daily papers. They found where the men had been all one Sunday afternoon. They even proved how many drinks they had had at this, that, and the other place. The murdered man had been drinking too. They had no spite against him—that is, in their *senses*; but under the influence of the drink he was foully murdered, just for the little money he happened to have in his pocket when he went on a spree with the other two. Here is what the Cleveland *News and Herald* says in regard to the matter:

The police are to be congratulated upon the arrest of

the two young ruffians who are said to have confessed to the brutal murder of a man in the vicinity of Bessemer Ave. and the Cleveland & Pittsburgh R. R. track, on Sunday evening. They did a good piece of work in quickly laying their hands upon the alleged murderers.

Two things should be observed in this connection, however. One is, that the prisoners drank in several saloons before the fatal assault was committed. This was on Sunday evening, when no saloons are supposed to be open. In that connection it may be reasonable to ask if there would have been a murder had the police done their duty in enforcing the law against Sunday liquor-selling.

Again, it is said that at least one of the prisoners has given the police much trouble in the past. He has been arrested several times, the last time in July, when he was charged with suspicion. The "kind and considerate hand" appears to have been reached out to shield him, and but for that he might have been placed where it would have been impossible for him to commit a murder.

To what extent are the authorities of this city responsible for this latest murder, because of their failure to enforce the law against Sunday liquor selling, and of their failure to hold at least one of the alleged murderers when he had been arrested on a charge of suspicion? Disregard of law, and lenient treatment of offenders, may be regarded as in the interest of humanity, but they are often promoters of crime.

Now, friends, would it not have been a magnificent thing if the policemen of Cleveland had shown the same thoroughness and alacrity in closing up *Sunday saloons* that they did in ferreting out and bringing to justice the parties concerned in this murderer?

Now, may be I am getting off my beat when I suggest something that this great Cleveland daily does not mention. The mayor of Cleveland, who not only has a big salary, but has taken his oath to enforce the laws, instead of being on hand in that great city to encourage the city police in enforcing the laws, where is he? As nearly as I can find out, he is off in an automobile, making speeches all over this State because he wants to be Governor of Ohio. I wonder if he has ever noticed the little text that says, "He that is faithful in that which is least is faithful also in much." Now, I for one protest against electing a mayor who draws his salary, and works all the while at some other job. I protest, also, against this modern fashion of having a postmaster who hires somebody to take care of the postoffice while he does something else, and so on with every other public office. Get a man whom we have every reason to believe from his past history will attend strictly to his duties and nothing else. And especially do we want men who demonstrate their fitness for a higher office by sticking right to the job the people of the nation have already given them.

When poor bespattered Johnnie reached up his hands in a plaintive appeal to his papa, who was a long while in getting there, he said, "O papal why didn't you hurry up?" And this is the moral that the *Sunday School Times* applied to the story of the boy who fell into the well. We want a lot of "hurry-up" people to look after our boys who are stumbling into all these dangerous wells, or who have already fallen in. I fear we are turning this whole business over to the Salvation Army, of reaching down and pulling up the boys and

girls, no matter how repulsive the work may be. God bless the Salvation Army! Surely they are a part of the great army of "hurry-ups" we need. Then we want hurry-up fathers and mothers; hurry-up Sunday-schools; hurry-up prayer-meetings; hurry-up Y. M. C. A. organizations and Endeavor societies; hurry-up temperance societies and temperance people, no matter where they are.

In speaking of the Y. M. C. A., I am reminded that Dr. Miller and I had rooms very near the great Y. M. C. A. building in Los Angeles. We visited that building several times, both on week days and on Sunday, and never found a door unlocked. I went there twice after Dr. Miller left, and could not get in. Now, there are some grand things about the city of Los Angeles, and I expect to speak of them in due time; but who is there in Los Angeles or anywhere else who can give a reason why the Y. M. C. A. reading-rooms in that great city should be locked up, especially when they have guests from abroad by the thousands?

It rejoiced my heart to hear Burdett give us an excellent sermon—a sermon in which he scored the police pretty severely for their treatment of the Salvation Army—and on the evening of the same day I heard Francis Murphy, and saw the evidence of the great work he is doing in that city. Murphy is now old and gray-headed; but there is considerable "hurry-up" about him, even yet. May God be with the hurry-ups, and may the readers of *GLEANINGS*, each and all, be found in the front ranks.



There are some things I have omitted in my travels away back that I will take up just now. Last winter I had a very pleasant visit with Mr. Wallace R. Moses, of West Palm Beach, Fla. Mr. M. is a real-estate dealer, and can probably give good advice to anybody who contemplates making a visit or purchasing a home in the land of perpetual flowers and sunshine. Friend Moses has a very pretty garden, not only of all the vegetables that will grow in his locality, but he is testing tropical fruits and flowers to quite an extent. As his property runs down to the salt water of Indian River, he has quite a collection of valuable plants that will grow in the salty marsh near the water. Then he has cut a little waterway up into this garden, where he runs a pretty little gasoline-launch; and I greatly enjoyed the trip in the boat for quite a distance around in the neighborhood of that great Palm Beach Hotel. The boat, up among the flowers and plants, makes a very pretty combination.

On my way home from Cuba I had a most pleasant visit with our good friend J. M. Jenkins, at Wetumpka, Ala. Most of the friends in the South know more or less about friend Jenkins because he has for so many years had charge of the Root Co.'s goods in that section. Besides, he has quite a nice little bee-hive factory of his own. In fact, he has just installed a new factory built all of brick. If he did not live so far down south I should call him a natural-born Yankee. Do you know why? Well, when he wanted brick to make his factory he could not get them just to his notion, so he established a brickyard, or bought one of somebody else; and he has not only made brick for his own building, but he has furnished a very nice article for quite a number of buildings in Wetumpka. When the bee business is not crowding, he utilizes his hands in the brickyard. Well, his home is quite a little piece from the postoffice; and on account of his large business through the mails, or for some other reason, our benevolent Uncle Sam has given him a post-office in his own part of the town. The name is Honeysuckle, and it is in charge of one of his bright wideawake daughters. One of his other daughters, in company with the mother, takes charge of all the correspondence in that new brick factory; and you just ought to see the bright little office occupied by the women-folks. In place of cigar smoke and untidy-looking spittoons, which we too often find in offices occupied by men, these women have got some beautiful flowers, and the room is fixed up almost like a parlor. If a man with a cigar in his mouth should get a glimpse of that tidy little room I am sure he would leave the cigar outside.

Well, now, the brickyard and the bee hive factory are not all friend Jenkins has on his hands. He is engineer and conductor of the branch railway that runs from Elmore, twelve miles, on the L. & N., to Wetumpka. He has charge, and has had for years, of this entire branch railway. He sees to the carrying of the mails, passengers, and freight. I asked his good wife if he had any other business enterprises besides what I had seen. She said he did have a farm out in the country, but she persuaded him to let it go. He also has one or more buildings to rent; is one of the directors of the principal bank in his town, and, if I remember rightly, he holds two or three important public offices besides. When he gets older he will probably let go of some of them—at least I hope he will.

THE BLUE COLORADO SPRUCE.

Now, friends, if you will excuse an abrupt jump of several thousand miles we will alight for a moment in the bright little village of Farwell, Clare Co., Mich. When I visited friend Bingham he told me we must be sure to call on the Wilkin sisters, and while there to be sure not to forget to notice a beautiful specimen of the Blue Colorado spruce. I did notice the tree, but forgot un-

til now, to make mention of it—see p. 771. This spruce has a sort of bloom much like the bloom of the plum over all its foliage. On this particular tree this blue haze or halo is so pronounced that one starts in surprise on getting a glimpse of it. It gave me a pleasant thrill; and when I inquired about it the sisters told me the trees were not so very expensive, but that only occasionally a specimen showed this marked peculiarity to such an extent as the one I was looking at. They furthermore pointed to several little trees that I think they said were seedlings. Some of them showed the blue more than others. I said then and there that I was going to have such a tree on our lawn, and also several near the cabin in the woods, where evergreens grow spontaneously. Now, friends, when you visit a nursery again, or when you look over some of the beautiful homes, watch and inquire for the blue Colorado spruce. With this preface we will take up our travels through Michigan on the automobile, where I left off at the town of Traverse City.

While Huber and I were stopping at the cabin in the woods we had the misfortune to break the main shaft in the engine of our automobile. I think I will tell how we did it, as it may prove a caution to others. Near the town of Bingham there are some very bad sandhills. An automobile will run up almost any hill where a team would attempt to pull any kind of load, especially if the ground is hard and firm. Where the soil is so sandy that the loose sand runs in between the spokes of the wheels, it is a pretty hard matter to run any automobile. When a horse pulls a vehicle he lifts up somewhat on the wheels and thus prevents them from sinking. The automobile, however, has no such lift upward. The engine can simply turn the rear wheels. In getting through dry sand or through soft mud we often have to run the engine a pretty good speed, and then put on the slow-motion clutch. Sometimes we can go only a few feet at a time; but it is generally possible to get up almost any hill by taking time. The road from Bingham Dock to the town of Bingham is cut up very deep by drawing heavy loads of lumber. For the first time in the whole trip through Michigan we found here a ridge of sand so high between the wheel tracks that in one or two places it struck the chain of the machine. You know how it works when you get sand on the chain of a bicycle. Well, in attempting to go over this sandy ridge the shaft was broken. Later on we got a boot or shoe that protected the chain so it could not possibly get into the sand. Let me say to the credit of the Olds company, however, that a new shaft and balance-wheel were sent us promptly at their own expense. When we bought the machine it was with the understanding it would make the trip all right through Michigan, and it did so. I may say briefly that, before the new shaft arrived, Huber and I, with such tools as we could pick up at an ordinary farmhouse, made a splice that

held very well for over 200 miles. We were about a day and a half in doing it.

At the town of Grawn, a little this side of Traverse City, a hotel-keeper who did not like automobiles informed us that another "billy goat" just like ours had passed through there only the day before. Automobiles have had a great many names, but Huber and I thought this capped them all—not a very dignified name, surely.

We got into Cadillac between seven and eight in the evening; and although we had relatives there, Huber was in such a hurry to get home he thought we could stop only about twenty minutes—long enough to shake hands, etc. A bright-eyed accomplished cousin of his, however, so changed his mind that, before the evening was over, he concluded it would not put us back very materially if we stopped over in Cadillac a *whole day*. Cadillac is situated on the shores of a beautiful lake, and the enterprising inhabitants have built a macadamized road nine miles in length clear around the lake, close to its shore. Our auto made it easily in one-half hour, and it is certainly one of the finest "drives" in Michigan. Cadillac is quite a manufacturing town; and when it comes to beautiful homes with cement walks and grassy lawns and nicely paved streets, I do not think I have ever found a prettier town in all my travels.

Somewhere between Cadillac and Big Rapids, I am sorry I can not tell just where, we passed by one of the fish-hatcheries established by the State. It was one of my "happy surprises." I did not know any thing about it until I saw some dainty little fish-ponds surrounded by bright grassy lawns. Finally I told Huber I thought it must be a fish-hatchery, and, no matter how great our hurry was, we *must* stop and look it over. There were little fishes, about the size of bees, or larger; speckled trout, black bass, and all the best food fishes known. In one of these little ponds you would find the fish about the size of bees; in the next, perhaps an inch long; then two and three inches long, and so on all the way up to fish big enough to produce spawn, and breed. I believe they are hatched out in a properly constructed building. It was just feeding-time when we stopped. I think the principal food for the fishes is raw liver, or some kind of cheap meat. This is ground in a machine, and then tossed into the water for the fish. For the little fishes it is ground very fine, larger for the larger ones, and so on. I think some of them are also fed on vegetable foods. When the food was thrown in among the fishes, a great lot of them, to show their joy, jumped clear out of the water. These fish-hatcheries can be located only where there is an abundance of clear cold spring water. This keeps the temperature of the fish-ponds very near the same, winter and summer, and washes out all filth, giving the fish a constant stream of pure fresh water. In the shallow tanks in the buildings it is interesting to see the baby fishes, each one swimming with all its

might; but the current of water through the shallow box or trough was graduated so the movement of the water was just about at the rate the fishes could swim; so they exercised their tiny fins in swimming with all their might, but they did not move along any. I noticed they all seemed eager to get close to where the water was admitted into the tank. They like fresh water just as we like fresh air.

Lake View is a very pretty *little* town also on the border of a dainty little lake. We stopped there to get water at a country store for our machine. I used to tell people our horse did not eat oats, but he needed water to drink about every 25 miles. While we were filling up the water-tank, I noticed some baskets of very nice-looking Red Astrachan apples standing out in front of the store; and then I noticed every man, woman, and child in the crowd standing around the machine was eating red apples as if they really enjoyed them. I handed the woman who kept the store a nickel, and told her to give us some mellow apples that were ripe enough to eat. When she prepared to give me about a peck in a paper bag, I remonstrated. I told her we could not take care of so many, and, besides, she could not afford so many for a nickel.

"Oh, yes!" she said, "that is all right. We sell them for twenty cents a bushel, and you ought to have about a peck for the nickel."

That was a woman's idea of storekeeping; but I think most of the men would want a little larger profit than that. I ate two apples, and they seemed to "hit the spot" so exactly I told Huber I felt sure they must be exactly what God intended we should have for food. Then I looked into the bag and saw a great big one that was so ripe it was breaking open. I thought I would just taste it, and see if it was as good as the other two. Then I remembered what Terry said, and I said to myself, "If I just *think* these apples will not disagree with me, they will be all right; so, here goes."

I will confide to you, dear reader, that within less than an hour there was quite a little delay with our automobile trip. I presume one reason why the apples made me sick was, they were the first ripe ones I had tasted for the season. If I had taken half an apple the first day, the next day a whole one, then two apples, until I had got a little used to them, I could probably have eaten three without disagreeable consequences. Dame Nature objects, or seems to, to too big a dose of almost any thing in the way of food to begin with. Some of you may suggest that it is not a very bad thing, after all, if one *does* get a severe physicking with new fruit. This may also be true; but my opinion is, it is better to go a little slow in upsetting the machinery of the digestive organs a little too suddenly. At the present time, Oct. 2, I am eating two good-sized ripe apples every day without bad consequences.

At Greenville, Montcalm Co., Mich., I was surprised to see some beautiful large facto-

ries that I was told were devoted to the business of producing silk; and this was the first intimation that I had had that silk-factories were to be found in Michigan. Can somebody tell us a little more about it?

Cuba.

If you are interested in Cuba and want the truth about it, subscribe for the

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the only English paper on the Island. Published at Havana, Cuba. \$1.00 per month, \$10.00 per year. Daily (except Monday).

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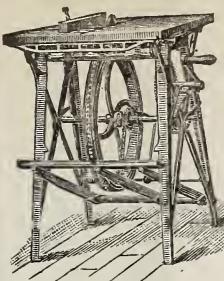
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All this is fully explained in a book which we want to send you free of all charges—on request. The book gives the complete history and earning power of the mail-order business. It gives statistics showing that the famous co-operative stores in England cleared over 40 per cent on the investment last year. We have reorganized our old-established mail-order business under the co-operative system. We want to interest you (no matter how large or small your capital) and we know you will be deeply interested if you let us send you our free book. It's a mine of interesting business information. It will make you either a shareholder (shares are \$10 each) or a customer. IF YOU BECOME A SHAREHOLDER you will find your investment the best and safest you have ever made—you buy into an old-established growing and successful business. IF YOU BECOME A CUSTOMER it will save you at least 25 per cent on every thing you buy.

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Established 1880.

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Cash Buyers' Union, First National Co-Operative Society, Department AA 345
168 to 168 W. Van Buren St., Chicago.

gentlemen:—Please send you complete "Book of Information" and all literature pertaining to your Co-operative mail-order business.

Name..... Street.....
P. O. State

It is understood that above will be sent to me free of all charges and that I am under no obligation whatsoever to subscribe.

GLEANINGS IN BEE CULTURE.

and share in its profits in the exact proportion of your contribution to the capital and the amount of goods you buy, and which are bought by all our other customers.

We have divided the capital into shares of \$100 each, so that you, even if you have the most modest means, can take advantage of this truly wonderful opportunity to—

1—Invest your money and draw dividends of no less than 7 per cent each and every year, with the possibility of earning as high as 40 per cent and more on every dollar invested.

2—Buy your goods at the lowest prices ever known and get an additional discount of 5 per cent (practically all the net profit) on everything you buy.

3—Make money by co-operating with us and get a commission of 5 per cent on all the new business you help us to get.

Our "book of information" fully explains all the particulars of our plan, and we advise you to send for this book and read it from cover to cover, and become a member and co-partner of our society as soon as possible, even if you start with but a few shares, and thereby obtain the immense advantages which we offer.

You are invited to
become a partner in
this great business!

Time for Argument has Passed

HERE IS THE EVIDENCE

Read These Interesting Letters from Our Shareholders who in stronger manner than any language of ours demonstrate the success of our wonderful co-operative plan; the great enthusiasm it has created among all classes and success to which it is destined.

Another \$1000 Co-operator.

Yankton, South Dakota.

Your letters of the 18th and 19th showing appreciation of my interest and approval of my work, at hand. I am interested because I can see that you have hit upon a great scheme, and I am confident that OUR business will very soon at least, be "the biggest thing on earth" with proper management, and I have faith in the management or would not put my money into it. I am to-day making application for 90 shares more of stock. This gives me the limit.

Your (our) prospectus is taking. It took me, and will others. I wish, if convenient, that my certificate of stock both for this and the former ten shares might be sent to me at Mitchell as I might like to make use of them in interesting others there. I have begun business with you (us) by ordering a watch on which I save \$9.00 over the price I would have to pay here for the same article.

A Canadian's Confidence.

No. 5184.

Stratford, Ont., Can.

I am sending you to-day \$10 for one share. If I were in position to take 100 shares, would take them just as soon as one. This shows the faith I have in your Union, as well as in its officers.

A Great Enthusiast.

No. 5790.

Marshfield, Mo.

I congratulate you on being among the few who commence the twentieth century with the co-operative method and idea, which I believe will ultimately become the method in all transactions the world over. I am enthusiastic on this subject and hope I may become a member of your "Society." Universal co-operation means no more poverty, human vengeance, or crime, but peace on earth and good will to man. I am now selling off my farms and live stock, and propose to devote my remaining days to this good work.

From Far-away Korea.

I was much impressed with your Prospectus and with the idea of co-operation. Your push and enthusiasm certainly ought to be contagious, and merits success. I am a missionary at home on a furlough, my field of labor being Korea. Other houses do a lot of business out there, especially in the line of dry goods, household goods, and sporting goods. I thought that, if I went in with you, I might be able to introduce our goods over there and supplant the other houses. The people over there did not like them.

A Strong Believer in Our Success.

No. 5325.

Cincinnati, Ohio.

About the first thing that attracted my attention on perusing the Bookkeeper Magazine which I received only yesterday, was your ad. concerning the re-chartering of your company, and after reading same through carefully I could not but help put faith in your movement, as it seems evident to me that it is destined to be a grand success. The fact that I have only subscribed for one share does not mean that I am in any way doubtful of its feasibility, as I should certainly take more were I able to do so just at the present time. Perhaps in the near future I shall be both better prepared to purchase additional stock. I fully believe I can influence many orders in your direction, or, rather, the company of which I am part.

Likes Our Plan.

No. 5058.

R. F. D. No. 4, Hudson, Ohio.

I like your plan, and if I had the money should take the limit of stock.

Another Old English Co-operator.

No. 5322.

Anita, Pa.

I am heartily in favor with your plan of co-operation. I was a member of a co-operative society in England twenty years ago, therefore I am able to judge of the blessings to thousands of families. I remit to-day \$10 for one share, and if not all taken up in the near future I might take one or two more.

Well Acquainted with Co-operation and Our Goods.

No. 5636.

Carnegie Library, {

Hazelwood, Pittsburgh, Pa. }

I wish to say I most heartily indorse the co-operative plan, and knowing the benefits and blessings that have accrued to those that have availed themselves of its advantages, by observation and experience, I have seen the people who were careless and slovenly grow into tidy and highly respected citizens because of the help they have received from the half-yearly dividends. They have furnished their homes and paid off old debts and raised somebody in the world; therefore I am pleased that you are engaged in such a worthy cause, and I will join the same and do some thing to increase its membership. My wife desires me to say she is well pleased with her machine, the Arlington.

\$1000 from an Insurance Man.

St. Louis, Mo.

Received your book of valuable information, and have read it carefully. I have been looking for several months for just such a company as yours to invest my money in. Inclose you application blank for \$1000.

A Head Book-keeper Interested.

No. 5016.

Abilene, Texas.

I am to-day forwarding to the Bank of Registrar a check for one share in your enterprise. After my stock shall have been issued I wish to send you a list of those that are in sympathy and would give their moral and financial support to your enterprise, and mail catalogs to them. I am head book-keeper for my firm, and enjoy a lucrative salary, yet I am a thorough co-operator.

Believes in Our Policy of Good Goods.

No. 5051.

Malden, Mass.

I am forced to admit that the plan looks fair. Continue to handle reliable goods—let some one else sell the cheap and worthless—and you will no doubt succeed. There are plenty of people in the world yet who want a good article and expect to pay for it. I wish you success in the undertaking, and will contribute my mite toward the same. I have sent the money to the bankers, as you direct, for five shares (\$50).

Below All Others in Price.

No. 5379.

Grant Park, Ill.

I am sending to-day \$100 to the Metropolitan Trust & Savings Bank for ten shares of your profit-sharing stock which I hope I will get. I would have sent sooner, but I have been delayed in sending. Now it is to your interest to let me have this stock, as I am a farmer and have lived on a farm all of my life, and order considerable stuff by mail as I find it is a money-saving business.

I have been trading with other houses, but I find you are below them in price for first-class goods. If I get the stock, as I hope I will, I will do my mail-order business with you, and will get my friends and relatives to do business with you. The mail-order business among the farmers is growing every year.

Now, I hope you will see that I get ten shares of the stock, and I will do all I can to make it a success.

Quits His Own Business to Join Ours.

No. 5460.

I have sent subscription and draft as per your proposition advertised in the July "Bookkeeper," and I would be pleased to have you send me what catalogs you have prepared. I was just preparing to enter the mail-order business, and from what I get from your proposition I believe it would be well for me to turn my attention to this work, and I think I can turn quite a large business from this section.

Muncie, Ind.

NOTE: Mr. H. J. Elliott, Secretary of the Metropolitan Trust & Savings Bank, of Chicago, will certify that these letters, the number of the certificate, and the amount subscribed are on record in his bank. As we always treat all transactions and investments of our customers and shareholders sacredly confidential, we are prevented from publishing names. Write to Metropolitan Trust & Savings Bank if you so desire.

A Heavy Mail-order Buyer.

St. Louis, Mo.

I wish to purchase about three shares of your stock within the next three weeks. I have always been a heavy mail-order buyer; have in the last ten years bought thousands of dollars worth of goods from other houses. I am much pleased with your plan. I want a few shares of your stock, at least three shares, for I am pleased with your prices and plans and want to purchase to a considerable extent from your house.

AND THIS THE RESULT--SOME OF IT

How Co-operation Interests Intelligent People.

Cert.	Occupation.	Town.	State.	Amt.	Cert.	Occupation.	Town.	State.	Amt.
6443	Farmer	Mobile,	Ala.	\$1000	5685	Farming,	Searight,	Penn.	100
6442	Insurance	St. Louis,	Mo.	1000	5687	Housewife,	West Paris,	Me.	100
5495		Kaneville,	Ill.	100	5694	Railroad Agent,	Port Carbon,	Penn.	200
5485		York Haven,	Penn.	150	5697	Waiter,	St. Louis,	Mo.	200
5466	Book-keeper,	Bonne Terre,	Mo.	100	5703		Chicago,	Ill.	100
5287		Oxford,	Mich.	100	5723	Farming,	Faribault,	Minn.	100
5165		Pittsburg,	Penn.	100	6085	Stock Gauger,	Kern,	Cal.	250
5282	Tailor,	Cairo,	Ill.	100	5883	Salesman,	Philadelphia,	Pa.	300
5270	Mill-manager,	Kenio,	Ill.	100	5857	Physician,	Watch Hill,	R. I.	400
5507	Retired Merchant,	St. Peter,	Minn.	100	5888		San Francisco,	Cal.	250
5234	Promoter,	St. Louis,	Mo.	250	5974	Housekeeper,	Kangley,	Ill.	400
5082	Publisher,	St. Louis,	Mo.	250	6000	Clergyman,	Warm Spring,	Ore.	300
5306		Del Roy,	Ohio.	150	6105	Teacher,	Quaway,	Mich.	200
5292	Druggist,	Coldwater,	Kan.	100	6121	Housekeeper,	Evansville,	Ind.	400
5263	Milliner,	Eau Claire,	Wis.	500	6251	Merchant,	Ellijay,	Ga.	500
5411		Zanesville,	Ohio.	250	6248		Toulon,	Ill.	500
5019	Farming,	Bartlett,	Kans.	500	6328	Electrician,	Troy,	Ohio.	500
5571		Friday Harbor,	Wash.	100	6403	Pur. Agent, R. R.	Perrysburg,	Ohio.	300
5572	Farmer,	Aberdeen,	Wash.	500	6487	Housekeeper,	Youngstown,	N. Y.	500
5584	Manufacturer,	Centralia,	Wash.	100	5497	Farmer,	Fairmount,	Ill.	600
5441	Farmer,	Wyndmere,	N. Dak.	140	5733	Manufacturer,	Meyersdale,	Pa.	300
5645		Lake Charles,	La.	1000	5738	Dentist,	Hennepin,	Ill.	120
5621	Printer,	New Alexandria,	Ohio.	100	5741	Merchant,	Quaker Springs,	N. Y.	500
5682	Housekeeper,	Prairie du Sac,	Wis.	100	5745	Real Estate,	Quaker Springs,	N. Y.	250
5837	Farming,	Nantucket,	Mass.	100	5750	Farmer,	Newton Falls,	Ohio.	100
5613	Superintendent,	Martins Ferry,	Ohio.	500	5751	Clerk,	Jane Lew,	W. Va.	500
5664	Delivery Clerk,	Chicago,	Ill.	100	5752	Farmer,	Braham,	Minn.	100
5665	Carpenter,	Chicago,	Ill.	100	5767	Farmer,	Wheelerburg,	Ohio.	300
5741	Farming.	Pana,	Ill.	100	5775	Housekeeper,	Longwood,	Fla.	100
5683		Merrill,	Iowa.	100	5610	Ranchman,	Meadow Creek,	Mont.	100

All these subscriptions and several thousand others ranging in amounts of \$10 to \$1000 (the greatest amount allowed to any one) were received in direct reply to our advertisement. Co-operation with but the smallest part of the country heard from—is a magnificent success. Will You Share in Its Benefits and Profits?

ARE YOU WITH US?

Of course, you are—if you give but half-way consideration to our plan (which is making millions for the millions in England, Germany, and France). The healthy, hearty enthusiasm as displayed in the few letters picked from several thousand received from our shareholders and customers is evidence that a truly CO-OPERATIVE store, supplying every need of the people in every country of the globe, is by all odds the most popular idea and best investment of the new century. **Subscribe To-day if but for One Share** while we offer to send our most interesting Book of Information FREE—don't wait for the book, but subscribe to-day. Now, before you lay aside this paper, and if after reading the book which we shall send you together with your certificate of stock, if you are dissatisfied with your investment for any reason whatever, we hereby guarantee to promptly refund money in full and cancel subscription.

For Quick Action Fill in this Remittance Blank and send in plain letter with P. O. Order, Express Order Check, or by Registered Mail if Currency.

Metropolitan Trust and Savings Bank, Dept. AA 345, Chicago, Illinois.
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GENTLEMEN:—I hereby subscribe for shares of the full paid, non-assessable, 7 per cent Preferred and fully participating stock of the **Cash Buyers' Union, First National**

Co-operative Society at \$10 per share. Enclosed find \$ in payment of same. This stock is to be registered by you in my name and the stock certificates sent to me, and when so registered and sent to me you are authorized to turn over my money to the society. If my subscription is received too late, the money is to be returned to me. It is understood that the society will promptly on demand refund my money if, after investigation, I am dissatisfied with my investment.

Name Street

Postoffice State

Long Tongues Valuable South as well as North.

How Moore's strain of Italians roll in honey down in Texas.

Hutto, Tex., Nov. 19, 1902.

J. P. Moore.—Dear Sir:—I wish to write you in regard to queens purchased of you. I could have written sooner, but I wanted to test them thoroughly and see if they had those remarkable qualities of a three-banded Italian bee. I must confess to you I am more surprised every day as I watch them. They simply "roll the honey in." It seems that they get honey where others are idle or trying to rob; and for gentleness of handling, I have never seen the like. Friend E. R. Root was right when he said your bees have the longest tongues; for they get honey where others fail. I will express my thanks for such queens. I am more than pleased. I will stock my out-apiaries next spring with your queens. Yours truly,

HENRY SCHMIDT.

The above is pretty strong evidence that red clover is not the only plant which requires long-tongued bees to secure the greatest quantity of nectar.

Daughters of my 23-100 breeder, the prize-winner, and other choice breeders: Untested, 75c each; six, \$4.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5; dozen, \$9.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail, and shall probably be able to do so till the close of the season.

J. P. Moore, L. Box 1, Morgan, Kentucky.
Pendleton County.

Victor's Superior Italians

go by return mail again. Owing to several large queen contracts, a contract for a *solid carload* of bees that went to Colorado, 85 three-frame nuclei to same State, numerous smaller orders for bees, and a good queen trade, it has been necessary for me to cut out my ad. for the past three months to keep from being swamped with orders. I am glad to notify my patrons that I am at last able to fill orders promptly with as fine queens as ever headed a colony, regardless of their source, at the following reasonable prices :

- 1 Untested queen, 75c; six, \$4.00.
- 1 Select untested queen, 90c; six, \$5.00.
- 1 Tested queen, \$1.00; six, \$6.00.
- 1 Select tested queen, \$1.50; six, \$8.50.

Breeders, \$3.00 to \$7.00—these are as good as the best.

W. O. Victor, Wharton, Tex.
Queen-specialist.

HONEY QUEENS

I shall continue breeding those fine queens for the coming season of 1904. Meantime I shall carry over a large number of queens in nuclei with which to fill orders the coming winter and early spring. I am breeding the Holy Lands, the Golden and Leather strains of pure Italians. Your orders will receive prompt and careful attention. Single queen, \$1.25; five for \$5.00. Breeders of either race, \$3.00 each.

W. H. Laws, Beeville, Texas.

QUEENS FROM JAMAICA

ANY DAY IN THE YEAR AT
THE FOLLOWING PRICES:

Untested, 60c; tested, \$1.00; select tested, \$1.50; breeders, \$2.50. Our queens are reared from the very finest strains. Please write your address plainly when ordering. Address,

**Geo. W. Phillips, Sav-la-Mar P. O.,
Jamaica, W. I.**

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinoes, are bred for business. Tested queens, \$1.50; \$8.00 for 6; \$15.00 per dozen. Untested, \$1.00 each; \$5.00 for 6; \$9.00 per dozen. Our best and finest breeders, \$5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed. ORDER "The Southland Queen," \$1.00 per year. Send for sample copy and our 1903 catalog; tells how to raise queens and keep bees for profit.

Root's Supplies.

The Jennie Atchley Co., Box 18, Beeville, Tex.

When you need Queens

and want your order filled at once with the *best* queens that money can buy, we can serve you and guarantee satisfaction. We have a fine strain of Italians that can not be excelled as honey-gatherers. We can furnish queens from either imported or home-bred mothers. Choice tested, \$1.00 each. Untested, 75c; \$8.00 per dozen.

J. W. K. Shaw & Co., Loreauville, La.

**Geo. J. Vande Vord
Queen-breeders. Daytona, Fla.**

Money = making Queens

are those whose bees GET THE HONEY. Two of my customers have tested well on to 1000 QUEENS of my strain, and are buying more.

My queens in Cuba do extra well. They swarm but little, and get honey while others are starving in the summer, and make big yields in honey season. Several of the largest bee keepers claim they get better results from my strains than from any others.

Queens, 75c. each; dozen, \$7.50. Selected, \$1.00; six, \$4.50. Warranted purely mated and good queens or replaced tested, \$1.25. Select. \$1.50. Extra, \$2.00. Circular.

J. B. CASE, Port Orange, Fla.

Your Last Chance for 1903

Red-clover queens: Untested, 75 cents; tested, \$1.00. Three incubators cheap, or will trade for bees.

G. Routhahn, - - - - - Biglerville, Pa.

For Sale—Thoroughbred Bloodhound Pups.

Best Strain in the South.

W. K. JAMES, - - - Loudon, Tenn.

TWO ARTICLES

pretty nearly fill the BEE-KEEPER'S REVIEW for October. One is by R. L. Taylor on that old subject, "The Cellar Wintering of Bees." Of course, it is an old subject, but Mr. Taylor has the faculty of saying new things on old subjects as well as telling old things in a new way, and his five-page article pretty thoroughly covers the ground from the choice of a spot in which to build a cellar until the bees are taken out in the spring. By this way, his idea as to when bees should be taken out, is well worth considering and trying.

The other article is by the editor, occupies 10 pages, and is a pen and camera picture of California bee-keeping. Finer pictures (some of them full-page) of California bee-keeping have never been published. An especially beautiful view shows Rambler's old apiary near Los Angeles. In this article the editor tries to show up California bee-keeping as it really is—giving both lights and shadows.

Send ten cents for this issue, and with it will be sent two other late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson,

= **Flint, Mich.**

**FARM
LANDS**

NET
\$1528.75
FROM
ONE
ACRE,

one season, planting in rotation cauliflower, cucumbers, egg-plants, in beautiful, health-giving Manatee County. The most fertile section of the United States, where marvelous profits are being realized by farmers, truckers, and fruit-growers. Thousands of acres open to free homestead entry.



Handsomely illustrated descriptive booklets, with list of properties for sale or exchange in Virginia, the Carolinas, Georgia, Florida, and Alabama, sent free. JOHN W. WHITE,

Seaboard Air Line Railway,
Portsmouth, Va.

Splendid Location for Bee-keepers.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co., are descriptive of Michigan's most beautiful section reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

4,000,000 PEACH-TREES

TENNESSEE WHOLESALE NURSERIES.

June Buds a Specialty.

No agents traveled, but sell direct to planters at wholesale prices. Absolutely free from diseases, and true to name. Write us for catalog and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest peach nursery in the world. Address J. C. HALE, Winchester, Tenn.

THE NORTH-WESTERN LINE Tourist Car Excursions Pacific Coast

Daily and personally conducted excursions; choice of routes; low rates; diversified scenery; \$6 for double berth in sleeping cars from Chicago; special attention to family parties.

The Best of Everything.

Books, maps and folders on application to S. A. Hutchinson, Excursion Manager, 212 Clark Street, Chicago, Ill. Telephone, Central 722.

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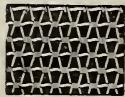


PAGE

THE SAVING

in posts, staples, and labor pays the difference in price, and then it lasts so much longer.

Page Woven Wire Fence Co., Box S, Adrian, Michigan.



FENCE! STRONGEST MADE. Built Strong, Chick-en Wire, Fully Warranted. Catalog Free. COILED SPRING FENCE CO., Box 101, Winchester, Indiana, U. S. A.

450,000 TREES

200 varieties. Also Grapes, Small fruits etc. best root-ed stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS BOESCH, Fredonia, N. Y.

Envelopes!!

Printed to Order \$1 per 1000

Heavy, white, high-cut, size 6 $\frac{1}{4}$. A neat little coupon on each envelope will earn you dollars. Other stationery cheap. For particulars and sample, address at once Howard Co., 516 Masonic Temple, Chicago, Ills.



COLD-FRAME SASH.

We are prepared to furnish these, made of pine or cypress, for either 8 or 11 inch glass, at 80 cts. each, \$3.75 for 5, or \$7.00 for 10, shipped K. D. The pine sash have side bars $3\frac{1}{2}$ inches wide by 6 ft. long. The cypress sash have $2\frac{1}{2}$ inch side-bars full $1\frac{1}{2}$ in. thick, and only 3 feet 3 in. wide.

GLASS, 8x10.

We have quite a stock of 8x10 glass for sash, which we offer at \$2.75 per box; 5 boxes, \$13; 10 boxes or more at \$2.50 per box. This is a special low price, below what some of it cost us, but in keeping with the present market price.

HONEY MARKET.

We are having a fair trade in honey at good prices, compared with what it is bringing in some markets. Fancy comb goes off best of anything. Extracted and the lower grades of comb sell more slowly. We have a good stock of extracted on hand, and a more limited supply of comb.

BUSHEL BASKETS.

We have in stock a few dozen oak-splint bushel baskets, such as we formerly listed in our department-store catalog. These we offer, while they last, for the common lap-splint kind, 3 for 60 cts.; 6 for \$1.10, or 12 for \$2.00. For the genuine Briggs basket, which will hold grain, 3 for 75 cts.; 6 for \$1.40, 12 for \$2.75.

EARLY-ORDER DISCOUNTS.

Remember the discount for cash orders this month is 6 per cent from present catalog prices, which are higher on some things than printed in our last catalog. Quite a good many have taken advantage of this discount, and have sent us liberal orders for next season. If you know what you need for next season, and can raise the money to pay for it, it is much to your advantage to order now, securing the liberal discount as well as getting the material on hand ready to put up and get ready for use while you have the leisure time in the winter.

BUSHEL CRATES.

In working up so much basswood lumber into sections, etc. we get a quantity of material of a grade not quite good enough for sections, but which makes suitable slats for bushel boxes. We have accumulated quite a stock of all-slatted boxes, put up 14 in a crate, 2 nailed, 12 knocked down, and nails included to put them together. Owing to increased cost of lumber we had marked our prices up to \$2.10 per crate; but we will continue the old price, \$1.90, for a while, to work off some of the present stock. A good deal of this stock is put up with oak corners and bottom end cross-piece, which receive the nails. This makes a very strong and durable crate. The slats are not rough-sawn, like the ordinary cheap crate, but are smooth.

CHICAGO BRANCH.

We call attention to an announcement in another column of a change in our Chicago agency. Some years ago, when we bought out the supply business of Thos. G. Newman it was continued for several years in the name of the A. I. Root Co., with Mr. George W. York as manager. Later Mr. York took over the supplies and conducted it in his name. Now we take the business and stock on hand back again, and will hereafter conduct it in our name. Mr. York still remains in the office with the *American Bee Journal* for the present. Mr. L. W. Boyden, a brother of our secretary, is taking charge under the direction of this office, and with Mr. York at hand for advice and consultation. For over twenty years Mr. York has worked in connection with the bee-supply business — first under Mr. Newman, and later under his own direction. He has been an indefatigable worker. In connection with the editing of the *American Bee Journal*, which comes out weekly on time as regular as clockwork, he has accomplished an amount of work that few would survive under. After so many years

of unremitting toil he desires some relief, and therefore relinquishes the supply business, still retaining the *Bee Journal*.

Special Notices by A. I. Root.

GROWING ONIONS TO BUNCH UP—OUR FIVE-CENT BOOK.

This little book is finally ready, and it is more of an onion book than we at first expected to make it. Everybody who grows onions, especially those who start onions under glass, can afford to invest five cents in our new onion-book.

AT THE CABIN IN THE WOODS ONCE MORE.

I have been changing about so much lately that I do not know but it may bother some of the friends to know just where I am "at" a great deal of the time. In fact, our good pastor has been nicknaming me "globe-trotter." I do not know but he feels a little like complaining because I am not on hand more of the time to hear his excellent sermons, and to question him, as I usually do, about them afterward. Well, next Monday morning, Oct. 12, Mrs. Root and I start once more for the cabin, or, as our youngest daughter will have it, our "cottage" in the woods. We shall be there about two weeks while I dig my seed-potatoes and ship them down to Medina; and then I expect to be here in Medina quite a little spell unless God in his wisdom calls me elsewhere.

FOR SALE.—Extra fine white clover honey, both comb and extracted. Write for special price.

JOHN A. THORNTON Rt. 1, Ursa, Ill.

FOR SALE.—Thirty barrels choice extracted white-clover honey. Can put it up in any style of package desired. Write for prices, mentioning style of package, and quantity wanted. Sample mailed on receipt of three cents in P. O. stamps. EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—A choice lot of extracted buckwheat honey, at $6\frac{1}{2}$ cents, put up in kegs holding about 163 lbs.

E. W. ALEXANDER & SON, Delanson, Schenectady Co., N. Y.

FOR SALE.—Choice alfalfa honey, in 60-lb. cans. Prices quoted on application.

W. P. MORLEY, Las Animas, Col.

FOR SALE.—4000 lbs. of comb honey in 24-lb. glass-front shipping-cases; well sorted and graded, clean and good.

OLIVER SEATON, Ladd, Bureau Co., Ill.

FOR SALE.—Extracted honey, amber, $5\frac{1}{2}$ up; light 7 up. Several size packages. Samples, 10 cts.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDERTH & SEGELKEN, 265-267 Greenwich St., New York.

WANTED.—Extracted honey. Mail sample and lowest price; also fancy and No. 1 comb honey; must be in no-drip shipping-cases. We pay cash.

CHAS KOEPPEN, Fredericksburg, Va.

WANTED.—Comb and extracted honey. State price, kind, and quantity.

R. A. BURNETT & CO.,

199 South Water St., Chicago, Ill.

WANTED.—Comb honey. We have an unlimited demand for it at the right price. Address, giving quantity, what gathered from, and lowest cash price at your depot. State also how packed.

THOS. C. STANLEY & SON, Fairfield, Ill., or Manzanola, Colo.

WANTED.—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & CO., Chicago, Ill.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere what they will have to offer.

SEAVEY & FLARSHEIM,

1318-1324 Union Avenue, Kansas City, Mo.

Finest Grades Extracted Honey for Sale!

Three kinds, clover, celadine, and buckwheat. Prices from 5½ to 9 c. per lb., according to kind and quantity wanted. This honey is better ripened than any comb honey on the market. Extracts from letters from some good judges:

Bell Branch, Mich., Oct. 9, 1903.

O. H. Townsend, Otsego, Mich.

Dear Sir:—Yours received, and the honey is very fine. In fact it is the best that we have received samples from this year. M. H. HUNT & SON.

Sample of honey is received, and the quality is superb. WALTER S. PODER.

512 Mass. Ave., Indianapolis, Ind.

Good enough for a king. A. V. BISHOP & CO.,

119 Buffalo St., Milwaukee, Wis.

A four-drachm sample of either kind of this honey sent by mail for six cents. Address

O. H. TOWNSEND, Otsego, Mich.

Chas. Israel & Brothers
486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

Squab Book Free



Squabs are raised in 1 month, bring big prices. Eager market. Money-makers for poultrymen, farmers, women. Here is something worth looking into. Send for our **Free Book**, "How to Make Money With Squabs" and learn this rich industry. Address PLYMOUTH ROCK SQUAB CO., 19 Friend St., Boston, Mass.

Sections, Shipping Cases, Honey Cases,

and every thing necessary for the bee keeper.

FINE ITALIAN QUEENS.

Prompt shipping.

Catalog Free.

C. M. Scott & Co., Indianapolis, Ind.
1004 East Washington Street.

Wants and Exchange.

WANTED.—To sell bees and queens. O. H. HYATT, Shenandoah, Iowa.

WANTED.—To sell fine job-printing outfit, nearly new. J. W. STEBBINS, Broad Creek, Va.

WANTED.—2d-hand shallow-frame hives, cheap for cash. E. BRUBAKER, 14 N. 3d St., Phila., Pa.

WANTED.—To sell Brown Leghorn cockerels. Circular. H. M. MOYER, Rt. 2, Bechtelsville, Pa.

WANTED.—To sell 75 colonies bees in good shape; will sell cheap. G. P. COOPER, Pikeville, Tenn.

WANTED.—The address of all who are still in need of cartons. **QUIRIN THE QUEEN-BREEDER.** Parkertown, Ohio.

WANTED.—An apiary on shares; am experienced and reliable; South preferred. C. S. DOWNER, South Haven, Mich.

WANTED.—You to read the ad't of ginseng on page 781, Sept. 1. For prices address A. P. YOUNG, Cave City, Ky.

WANTED.—Sourwood comb and extracted honey. State grade and price. W. A. DUNLAP, Dunlap, N. C.

WANTED.—To sell Water Spaniel puppies, six months old; quality high, price low. MT. SAFFORD FARM, Salem, N. Y.

WANTED.—To correspond with parties having apiaries for sale in Southern California, or Maricopa County, Arizona. WM. PEARSON, Colfax, Iowa.

WANTED.—Your address on a postal for a little book on Queen-Rearing. Sent free. Address HENRY ALLEY, Wenham, Mass.

WANTED.—To sell half interest in my apiary, pineapple and orange plantation. Good apiarist will have exclusive charge. D. DALY, La Gloria, Cuba.

WANTED.—To buy quantity lots of choice white-clover comb and extracted honey. Price must be low. B. WALKER, Clyde, Ill.

WANTED.—To buy a few cases of extracted sage and alfalfa honey; state price and quantity. H. VOGELER, New Castle, Cal.

WANTED.—To exchange a two hundred-egg Reliable incubator, been used very little, for choice comb or extracted honey. CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—To exchange an incubator-tank, and a safety lamp for an incubator of 200-egg capacity, for a trio of minorcas or a pure-bred Angora Billy-goat. MRS. C. A. HULTQUIST, Brookhaven, Miss.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell full colonies Italian bees in 8 or 10 frame Dov'd hives, with plenty of honey to winter, \$5.00 each; in lots of 25, \$150 each. F. A. GRAY, Redwood Falls, Minn.

WANTED.—To sell 75 colonies bees in ten-frame hives. No failures; good location; Northern community; good local trade; no opposition. \$200 cash buys the outfit; good reasons for selling.

K. B. MORRIS, Box 100, Chadbourne, N. C.

WANTED.—Assistant lady bee keeper, one that is strong, and willing to assist wife at housework when not with the bees. A long job, pleasant home, and good wages. Address Box 2, Buckeye, Arizona.

WANTED.—To sell 100 hives of bees in eight-frame Chaff hives with tin roofs, inside room for two supers, all complete, for \$3.00 a hive where they stand. CATHERINE McCASLIN, 308 Pittsburg St., New Castle, Pa.

WANTED.—To sell. Having lost my wife, will sell 30 acres of land and 50 or 75 stands of bees in eight-frame hives; best location in the county. Write for particulars and price at once. F. D. ANDREWS, Box 88, Walsenburg, Colo.

WANTED.—100 ten-frame extracting-supers, 10 ten-frame deep supers for comb honey, or 1000 shallow extracting-frames, all in the flat; all new, or second-hand in good condition. W. H. COLLIER, Clarkson, Texas.

WANTED.—One or two tons of honey, 4×5 sections preferred, but can use other sizes correspondence solicited, giving lowest cash price, etc.; and to parties not living too far away in this State, if favorable, I will call on them. A. W. SMITH, Birmingham, Mich.

WANTED.—An experienced and trustworthy dairy-man and farmer, with two grown boys, to milk and care for 40 cows; stable has cement floor, and water-basin in each stall; milking hours, 4:30 A.M. and 2 P. M. Wages \$800 per year with house-rent and garden. When answering this ad. state your experience in dairying, and give references; state age, and age of members of family. J. P. WATTS, Kermoor, Pa.

WANTED.—To sell aparian outfit in good honey country in Minnesota. Raspberry, plum, white clover, willow-herb, basswood, and goldenrod. 220 colonies of Italians; 400 supers, 2 extractors, and all necessary appliances. Also buggy, Barnes saw, and honey-house 12x24, built in sections. Also use of house till April next. Bees all in good condition for wintering. What offers? Write X Y Z, GLEANINGS, Medina, O.

PAGE & LYON,

New London, Wisconsin.

MANUFACTURERS OF
AND DEALERS IN . . .

BEE-KEEPERS' SUPPLIES. . . .

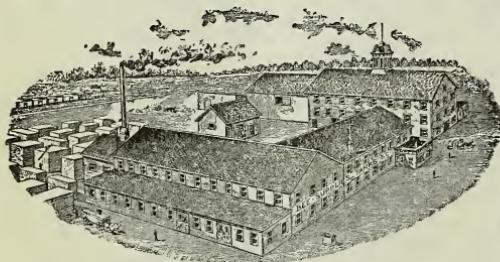
Send for Our Free New Illustrated
Catalog and Price List. . . .

We Have Not Moved.

The government, recognizing the necessity of a great and growing business enterprise, for better mail service has given us a postoffice on our premises, which enables us to change mails with the passing trains instead of through the Wetumpka, Alabama, postoffice more than a mile distant. This gives us our mails about two hours earlier, and also one hour for making up outgoing mail. This will be particularly helpful in our queen business. We are now booking orders for Italian queens, Long-tongued and Leather-colored; both good.

J. M. Jenkins,
Honeysuckle, Alabama.

Shipping-point and Money-order
Office at Wetumpka, Alabama.



Kretchmer M'f'g Company,
Box 60, Red Oak, Iowa.

BEE- SUPPLIES!

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring **BEST** goods at the **LOWEST** prices, and prompt shipment. We want every bee-keeper to have our **FREE ILLUSTRATED CATALOG**, and read description of Alternating Hives, Ferguson Supers. *Write at once for catalog.*

Agencies.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
Foster Lumber Company, Lamar, Colo.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.

Truly yours,
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop inky drops. The perforated steel fire-grate has 881 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

A Pointer

We can supply your wants
for supplies of all kinds.

The A. I. Root Co.'s Goods

Hives, sections, foundation, honey extractors, honey-cans, shipping-cases, etc. In fact, anything needed in the apiary. Let us hear from you. A lot of No. 1 Home repairing outfits, 44 pieces, \$1.00 each to close them out.

Jno. Nebel & Son
HIGH HILL, - - MO.

Headquarters in
CALIFORNIA !

We wish to remind GLEANINGS readers that we are again ready to serve them with whatever they require in Bee-keepers' Supplies. We not only have a good assortment of our own manufacture but we can furnish a

Full Line of Root's Sundries such as Smokers, Sections, Cowan Extractors, etc. Let us have your name and address at once, and we will send you our catalog.

Union Hive & Box Co.
Los Angeles, Cal.

Oregon Bee-keepers



For years we have supplied you with a portion of your requirements in bee-keepers' Supplies, for which we thank you. We are better prepared than ever to take good care of orders this season. We have acquired the business of Buell Lamberson's Sons, of this place, and have the agency for this State for

The A. I. Root Co., Medina, Ohio.

One carload is already on the way, and others will follow. If you require special goods or anything not usually kept in Western stocks, we can get it for you on our next car.

Seeds, Fertilizers, Trees, Garden Tools, Poultry and Bee Supplies.

Portland Seed Company,
Portland, Oregon.


Montana,
Minnesota,
Dakota, and
West'n Wisconsin
BEE-KEEPERS

Our 33d annual catalog (for 1903, 92d edition) is now ready. Send for a copy at once. We have a full line of goods in stock, and can fill orders promptly. Save freight by ordering of the St. Paul branch.
Bees and Queens. Orders booked now for spring delivery. **Honey and Wax.** We handle honey and wax. Write for particulars.

The A. I. ROOT COMPANY
Northwestern Branch,
1026 Mississippi St.,
ST. PAUL, MINNESOTA
H. G. Acklin, Manager.

Texas Bee-keepers.

STOCK.—Our warehouse is now stocked with a good assortment of Hives, Sections, Extractors, and other supplies direct from Medina.

PROMPTNESS.—We can therefore fill your orders promptly. Do not suffer long delay by ordering from some distant point but send orders here.

HEADQUARTERS for bee-keepers in San Antonio. Whenever you visit San Antonio you are invited to call at our office and make it your headquarters. See our display of supplies. Leading bee-journals on file for your perusal too.

WANTED.—Beeswax and Honey. Write for particulars.

The A. I. Root Co.,
438 West Houston Street,
San Antonio, Texas.

Why Not



Place your order now? We will make you special prices for early delivery. We are headquarters in Central California for Root's Cowan Extractors, Sections, Weed Foundation, Smokers, etc., as well as a full line of local-made supplies. We can give you prompt service. We solicit your patronage.

000

Madary's Planingmill
Fresno, California.

BEEKEEPERS *Notice*

We sell the Root goods here at Root's factory prices, which means the freight is paid to Des Moines, Iowa.

Immense stock and every variety of the best up-to-date goods now on hand packed prompt shipment.

Satisfaction is guaranteed on every order sent us. Thousands have been pleased with their goods from us. We can satisfy you.

Write for estimates, sending list of what you will need, and get our discounts for early orders. We will save you money. Send to-day for 1903 catalog.

JOS. NYSEWANDER,
710-12 W. Grand Ave.
DES MOINES, IOWA.

— 26th Year —
Dadant's
Foundation.

WHY DOES IT SELL SO WELL?—Because it has always given better satisfaction than any other. Because in 25 YEARS there have been no complaints, but thousands of compliments.

WE GUARANTEE SATISFACTION.—What more can anybody do? Beauty, purity, firmness, no sagging, no loss. **PATENT WEED PROCESS OF SHEETING.**

BEESWAX WANTED AT ALL TIMES — Send name for our catalog, samples of foundation, and veil material. We sell the best veils, either cotton or silk.

LANGSTROTH ON THE HONEY-BEE, Revised. The classic in bee-literature \$1.20 by mail.

Bee-Keepers Supplies
of All Kinds.

DADANT & SON,
Hamilton, Ill.